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METEOROLOGICAL MEASUREMENTS DURING THE WESTERN MEDITERRANEAN CIRCULATION EXPERIMENT - JUNE 1986

by *and others.*
Julie Haggerty, Roland R. Picard, Robert W. Fett
Naval Environmental Prediction Research Facility

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1. INTRODUCTION

In the spring of 1986, the Naval Environmental Prediction Research Facility (NEPRF) sponsored an effort to collect atmospheric data in the western portion of the Mediterranean Sea. The measurements were taken in conjunction with the Naval Ocean Research and Development Activity (NORDA) during the Western Mediterranean Circulation Experiment (WMCE). The purposes of WMCE were to characterize ocean circulation in the western Mediterranean Sea and examine the effect of the circulation on biology and chemistry. Cruises designed to collect oceanographic data provided an excellent opportunity for atmospheric measurements as well.

Personnel from NEPRF, Louisiana State University (LSU), and Calspan Corporation collected meteorological and aerosol data during three cruises in May and June, 1986. The first cruise was aboard the USNS Lynch (T-AGOR 7) during 27 May-13 June as it sailed from Rota, Spain into the Alboran Sea. The second cruise was also aboard the USNS Lynch (17-30 June) from Rota to the Strait of Gibraltar. Finally, data were collected from the USS America (CV-66) during 19-27 June as it sailed from Palma, Spain through the Strait of Messina to Naples, Italy. Figure 1 is a map of the region on which the routes of the three cruises are plotted.

The primary objectives of these efforts were to gather ground truth data for comparison with satellite-derived estimates of aerosol amounts and to obtain high resolution temperature and humidity soundings for radar ducting studies and model comparisons. This report describes the types of measurements taken and the instrumentation and procedures used to make those measurements. The meteorological data are given in the form of soundings and surface observations. Synoptic analyses developed subsequent to the experiment are also provided along with satellite imagery of the region. Appendices containing these data follow this report.

2. MEASUREMENT PROCEDURES

Meteorological measurements during the cruises consisted of hourly surface observations and twice daily radiosonde measurements of upper air data. Table 1 gives a complete list of variables measured from each platform. A high resolution radiosonde system (AIR/Airsonde model AS-1 series) and associated data acquisition device (AIR/ADAS model AIR-3B) were used for vertical soundings of pressure, dry-bulb temperature, and wet-bulb temperature or relative humidity.

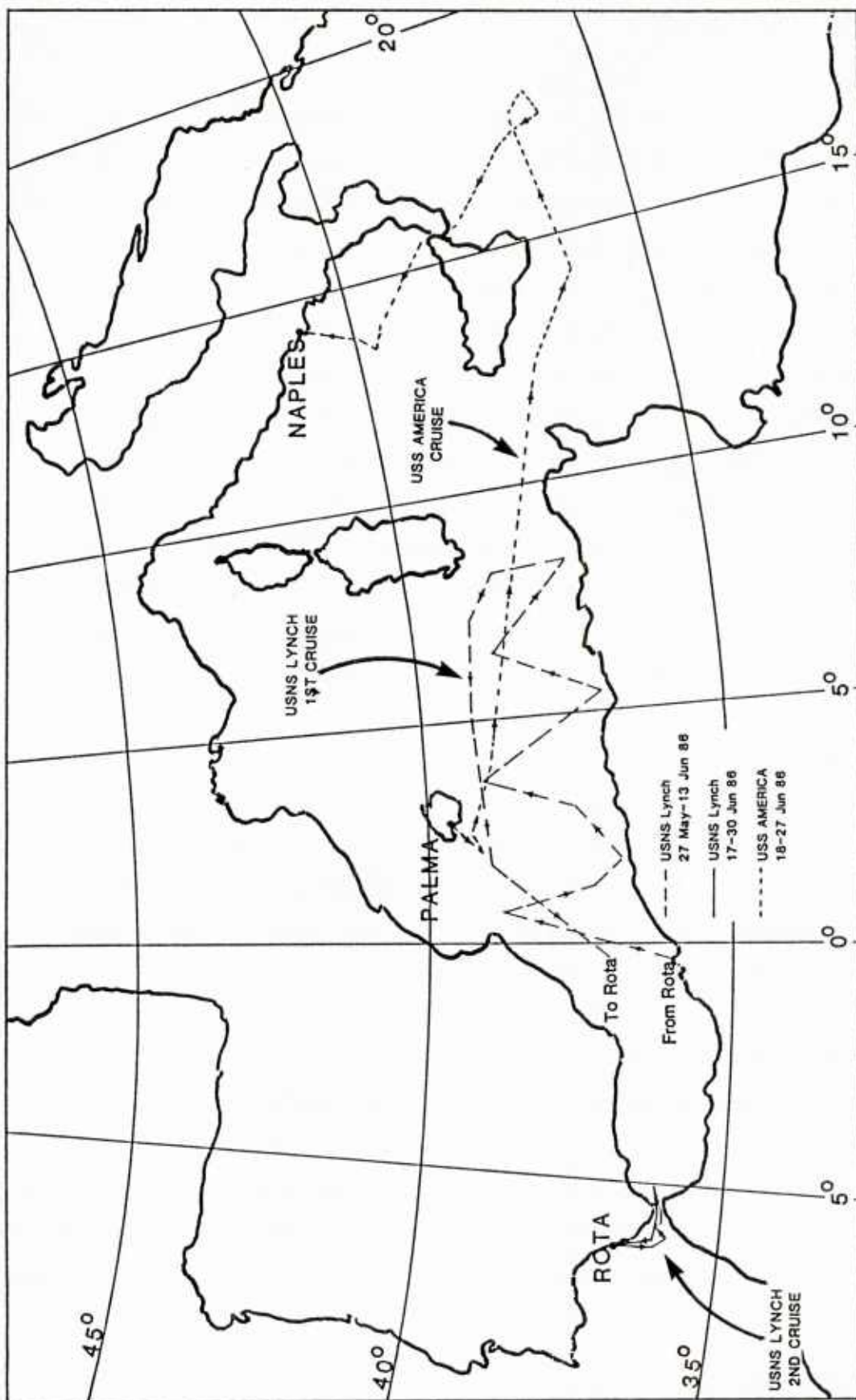


Figure 1. Routes of three cruises during which atmospheric data were collected.

Table 1. Summary of meteorological measurements.

Cruise	Measurement	Frequency	Total No. of Observations	Height Above Sea Surface
Lynch-1	P, T, Td profiles	Twice daily ¹	13	4 m - 8000 m ²
Lynch-2	P, T, Td profiles	Twice daily	26	4 m - 8000 m ²
	Surface meteorological	Hourly	178	4 m (except winds)
	Aerosol size distribution	Hourly	160	12 m
	Scattering coefficient	Continuous	-	12 m
	Aerosol optical depth	Hourly	134	9 m
	Aerosol composition	Variable	35	12 m
America	P, T, Td profiles	Twice daily	20	10 m - 8000 m ²
	Surface meteorological observations	Hourly	86	30 m
	Scattering coefficient	Continuous	-	30 m

¹Weather and/or flight operations permitting

²Approximate vertical range of soundings

On both the USNS Lynch and the USS America, radiosondes were launched from the fantails which are 4 m and 10 m above sea level, respectively. Hourly surface observations of temperature, wet-bulb temperature, pressure, winds, cloud cover, and sea surface temperature were made on the second USNS Lynch cruise and the USS America cruise. On the Lynch, temperatures and pressure were measured on the fantail (4 m above sea level). Wind speed and direction were recorded from the ship's anemometer (20 m above sea level). Temperature and pressure measurements from the America were made at 30 m above sea level; winds were derived from the ship's anemometer at 70 m. Ship velocity and position were obtained from the onboard satellite navigation systems during each cruise. Sea surface temperatures on the Lynch were measured with a thermometer and small bucket which was lowered into water undisturbed by the ship's wake. On the America, injection water temperatures were recorded.

The frequencies at which measurements were taken are listed in Table 1. Surface observations of pressure, temperature, wet-bulb temperature, winds, cloud cover, and certain aerosol characteristics were made hourly during daylight hours (roughly 0600 GMT to 1800 GMT). Soundings were taken twice daily, except when balloon launches were restricted by flight operations onboard the USS America or when high winds and seas prohibited launches from the first USNS Lynch cruise. Regular launch times of 0600 and 1200 GMT were maintained during the second Lynch cruise. Sounding data from the first Lynch cruise and the America cruise are at variable times due to the factors described above.

Various aerosol-related measurements were also taken during portions of the experiment. The bulk of these data were collected on the second Lynch cruise. Aerosol size distribution (0.0025 to 5.0 microns), scattering coefficient (visibility), and solar intensity (aerosol optical depth) were measured at hourly intervals. Particle samples for composition analysis and large droplet distribution measurements were taken approximately 2-3 times per day. Certain aerosol measurements were also taken on the America. These include scattering coefficient, solar intensity, and occasional particle samples. A complete report of aerosol characteristics during the experiment and aerosol measurement techniques is given in Wattle (1988).

3. SYNOPTIC CONDITIONS

Surface and 500 mb charts over the Mediterranean region were obtained from the Fleet Numerical Oceanography Center data base and analyzed after completion of the experiment. Analyses for May 27-June 30 are presented in Appendix A. Surface charts showing isobars

station observations are given at 0000, 0600, 1200, and 1800 GMT. Corresponding 500 mb charts with height contours, isotherms, and wind vectors are included for 0000 and 1200 GMT. Meteosat visible images for compatible times are also published. A brief assessment of the synoptic conditions for each day is provided with the charts.

Weather conditions were typical of the region for late spring and early summer. High pressure regimes dominated the period, bringing light winds, morning fog and low stratus, and little precipitation. Notable exceptions to those conditions include a cold front which passed through the western Mediterranean region on 29-30 May causing rain and high winds. A weaker cold front over the northern part of the western Mediterranean on 4 June set-up northerly flow and a Mistral circulation. Cold fronts were also observed to pass over the Strait of Gibraltar on 21 June and 23 June. Visibilities were restricted on many occasions by fog. The lowest visibilities during the experiment generally occurred in the Tyrrhenian Sea between Italy and Sicily.

4. DATA SUMMARY

Meteorological data collected from the three cruises are included in this report. A total of 59 soundings were taken during the experiment; they have been plotted on Skew T-log P diagrams and are in Appendix B. Temperature and dewpoint temperature in degrees C are plotted as a function of pressure in mb. The soundings provide high vertical resolution with a data point every 2-3 mb. Only the plots are given in this report; the actual numerical data can be obtained on floppy discs from the authors.¹

Hourly surface observations from the second Lynch cruise and the America cruise are also given in Appendix B. These observations are available during daylight hours for the duration of each cruise. Specific variables included are pressure (mb), temperature (C), dewpoint temperature (C), wind speed (knots) and direction, cloud cover (fraction in tenths), and visibility (km) as measured by HSS visibility meters. Other aerosol-related measurements are not published here, but can be obtained from Wattle's (1988) report.

¹ Analysis of the soundings has revealed the presence of super-adiabatic layers, extending from the surface to several tens of meters, in many cases. It is thought that ship influences may be responsible for producing this phenomena. No attempts have been made to correct this feature. The soundings published here represent actual measurements, with adjustments made to the data for calibration purposes only. Details regarding calibration procedures can be obtained from the authors.

Satellite data from various sensors have been obtained for the experimental period. They include: (1) DMSP visible and IR images; (2) Meteosat visible and IR images; (3) soundings of temperature and precipitable water from the NOAA-9 Tiros Operational Vertical Sounder (TOVS); and (4) channel radiances from the NOAA-9 Advanced Very High Resolution Radiometer (AVHRR). Meteosat imagery are included with the synoptic analyses.

A detailed discussion of aerosol measurements is beyond the scope of this report, but a brief description of aerosol characteristics based on visibility is included for completeness. Visibilities recorded (by the HSS nephelometer) on the second Lynch cruise were often high; six days had visibilities of 50 km or higher. One day had a measured visibility near 40 km, three days were near 30 km, and the lowest visibilities of 10-20 km were recorded on two days. Although there is a good range of visibilities, very low visibilities (below 2 km) were not encountered in the Gibraltar region. Wattle (1988) found that visibility fluctuations correlated well with particle concentrations in the 0.5 to 1.78 micron range.

Visibilities onboard the America showed a greater range of variation. HSS measurements as low as 2-5 km were recorded on two days during the cruise. Visibilities greater than 50 km were measured on four days. The remaining days tended to have visibilities between 10 and 30 km. Hourly measurements of visibilities for both cruises are included with surface observations in Appendix B.

5. APPLICATIONS

The data collected in this experiment are useful for a number of applications at NEPRF. The experimental effort was designed to obtain ground truth information for validation of techniques to derive meteorological information from satellites. Specifically, the aerosol and visibility data are being used for comparison with a model which estimates aerosol optical depth and visibility from AVHRR radiances (Durkee and Haggerty, 1987).

Other uses of the data have developed since the experiment. The high resolution soundings are being used for studies of evaporative duct characteristics and comparison with boundary layer model predictions of such features. Finally, sensitivity studies of electro-optical models have been done using surface data from the experiment compared with analyzed field data from Fleet Numerical Oceanography Center (Sampson, 1988) and satellite-derived data.

6. SUMMARY

A comprehensive meteorological data set including surface observations, soundings, aerosol measurements, synoptic analyses, and satellite data has been compiled. It covers the western Mediterranean region during the period May 27-June 30, 1986, with the most intensive period being June 17-29. Much of the available data is published here; other data can be obtained from the authors.

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- Durkee, P.A. and J.A. Haggerty, 1987: A method for estimating meteorological range over oceans from satellites, Proceedings of the Eighth Annual EOSAEL/TWI Conference, Physical Sciences Laboratory, New Mexico State University, Las Cruces, December, 1987.
- Sampson, C.R., 1988: Comparison of electro-optical ranges as calculated from model-derived and observed data, Naval Environmental Prediction Research Facility, TR88-03, 34 pp.
- Wattle, B.J. and C.W. Rogers, 1988: Aerosol characteristics in the marine boundary layer over the Straits of Gibraltar - June 1986, Calspan Corporation Final Report, Naval Research Laboratory contract no. N00014-85-C-2393, 65 pp.

APPENDIX A

SYNOPTIC CHARTS AND SATELLITE IMAGERY

Analyses for May 27-June 30 are presented in Appendix A. Surface charts showing isobars and station observations are given at 0000, 0600, 1200, and 1800 GMT. Corresponding 500 mb charts with height contours, isotherms, and wind vectors are included for 0000 and 1200 GMT. Meteosat visible images for compatible times are also published. A brief assessment of the synoptic conditions for each day is provided with the charts.

The following abbreviations are used in the captions:

Cu	Cumulus
Ci	Cirrus
Ac	Alto cumulus
Sc	Strato cumulus
St	Stratus
Fs	Fracto stratus
Cs	Cirro stratus
Cb	Cumulo nimbus

Figure 2 depicts geopolitical boundaries and the names of regions within the Mediterranean Sea.

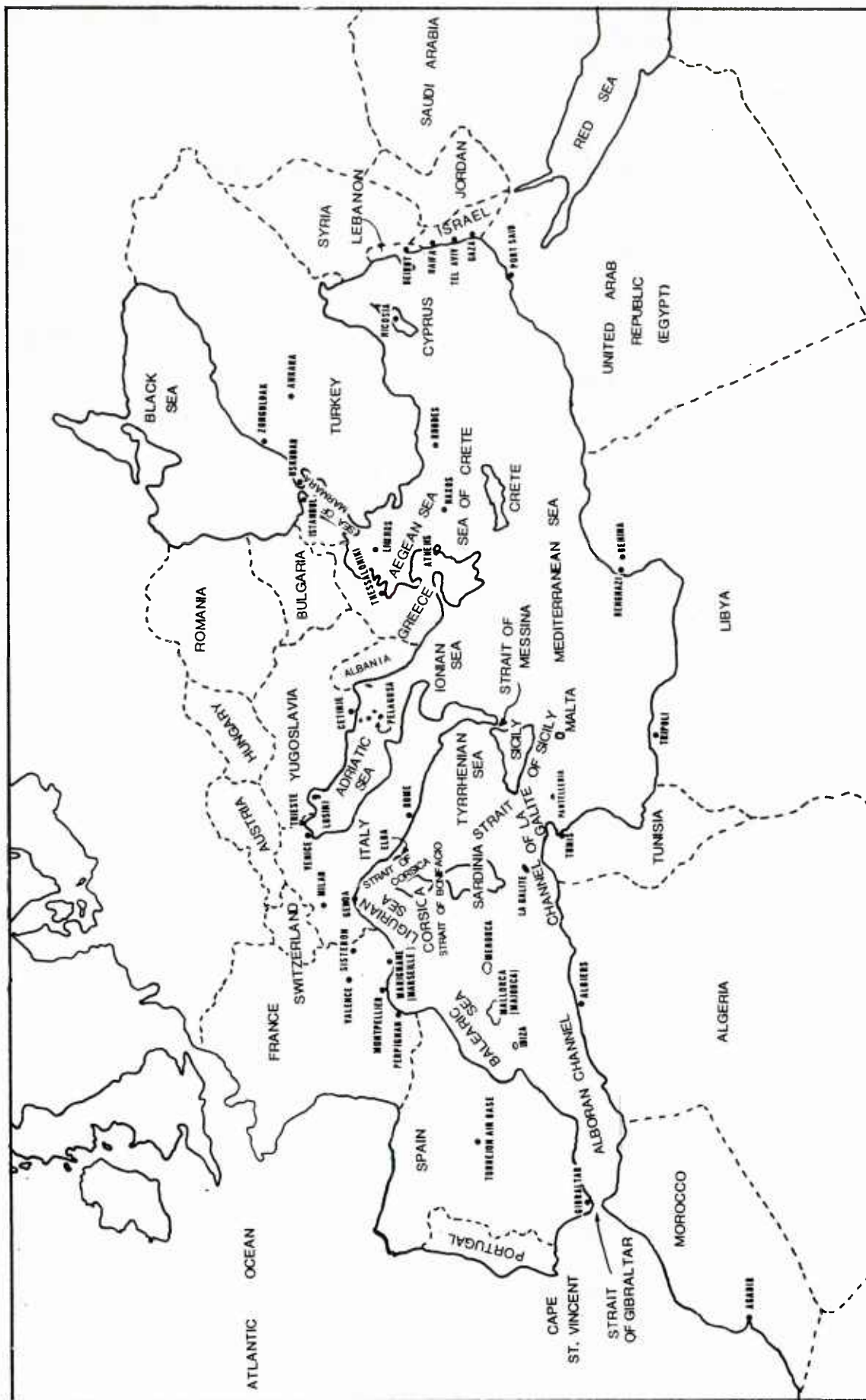
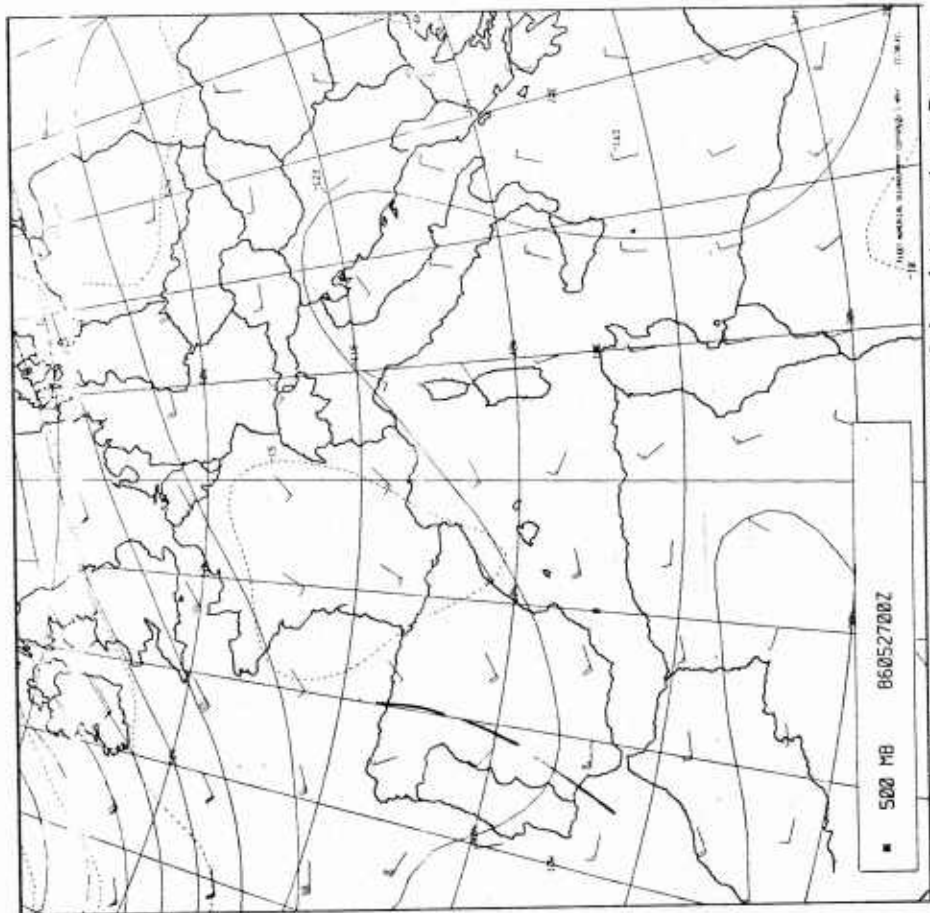
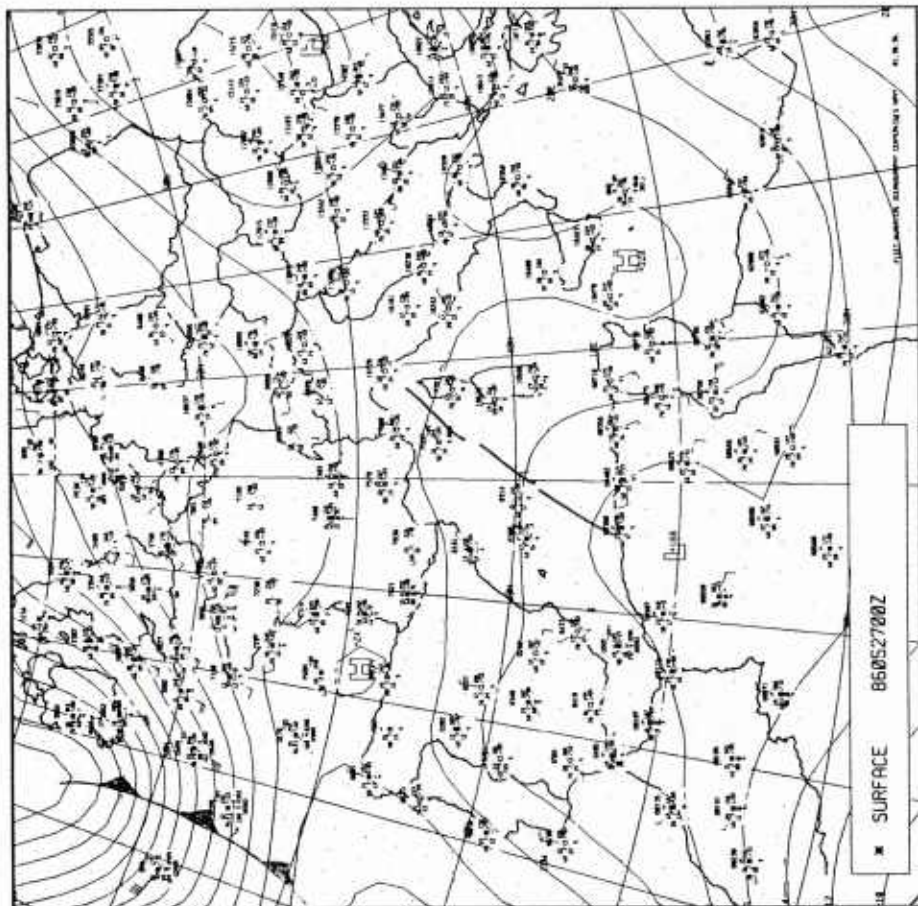


Figure 2. Map of Mediterranean area with political boundaries and major cities.

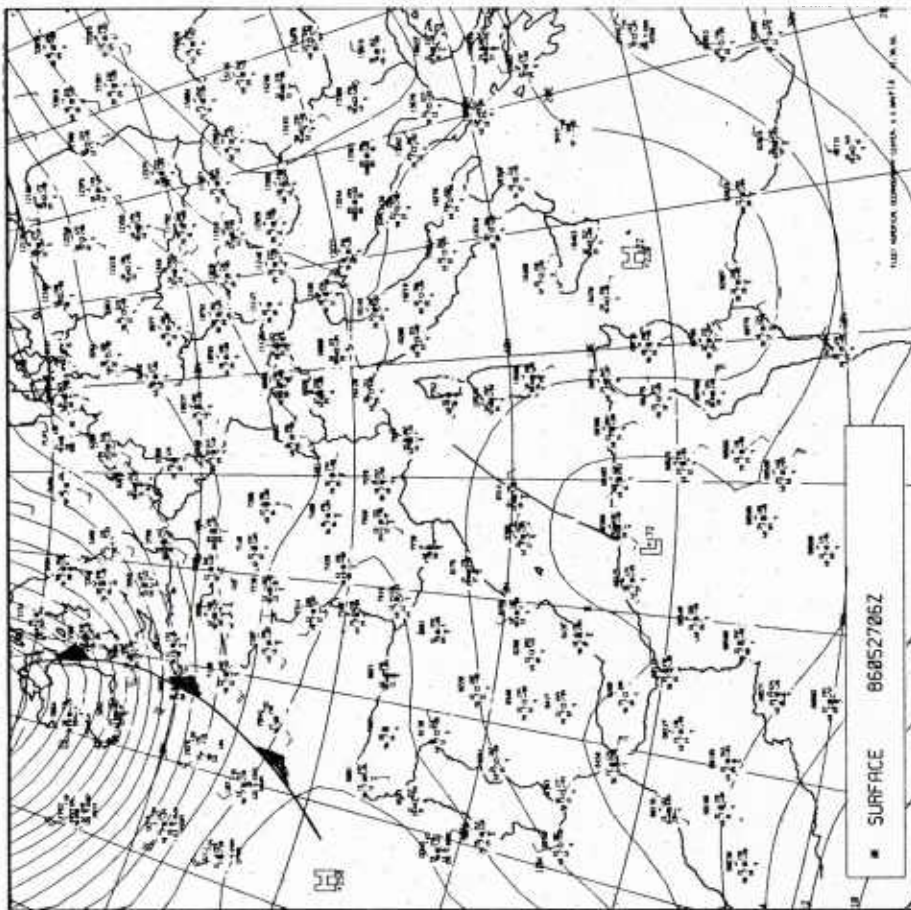
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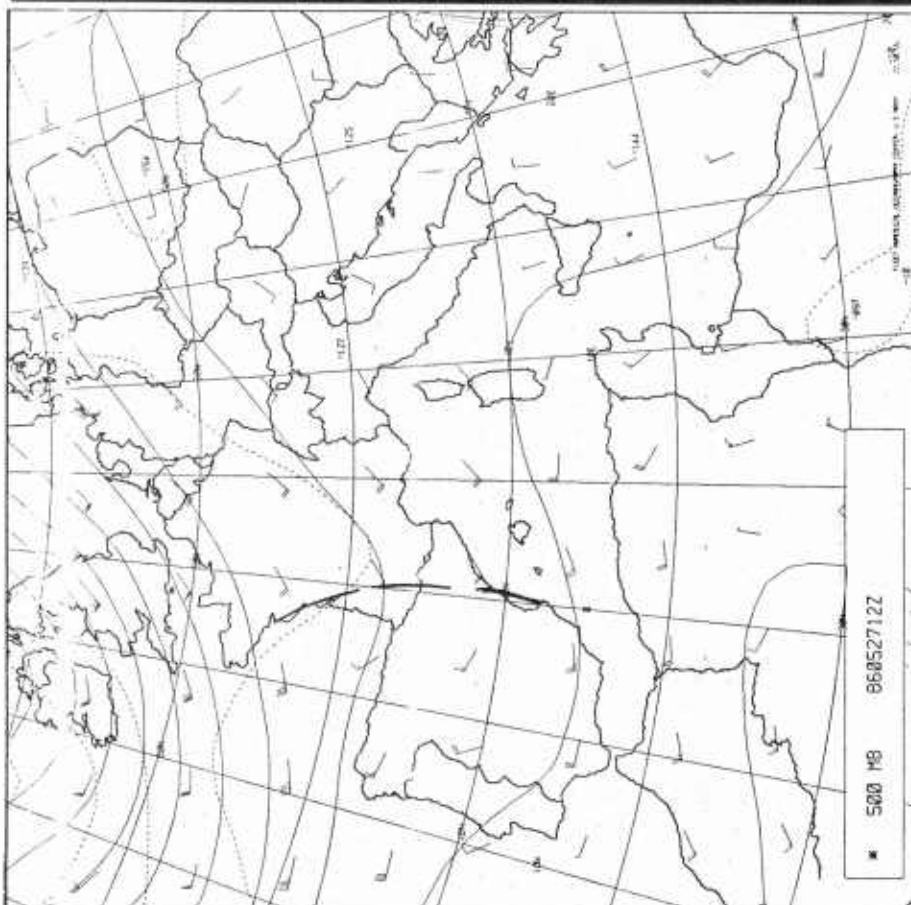
A broad ridge extends from North Africa into eastern Europe.
A short wave is over Spain and is moving into the WEST MED. An
80 kt jet is located over the North Sea.



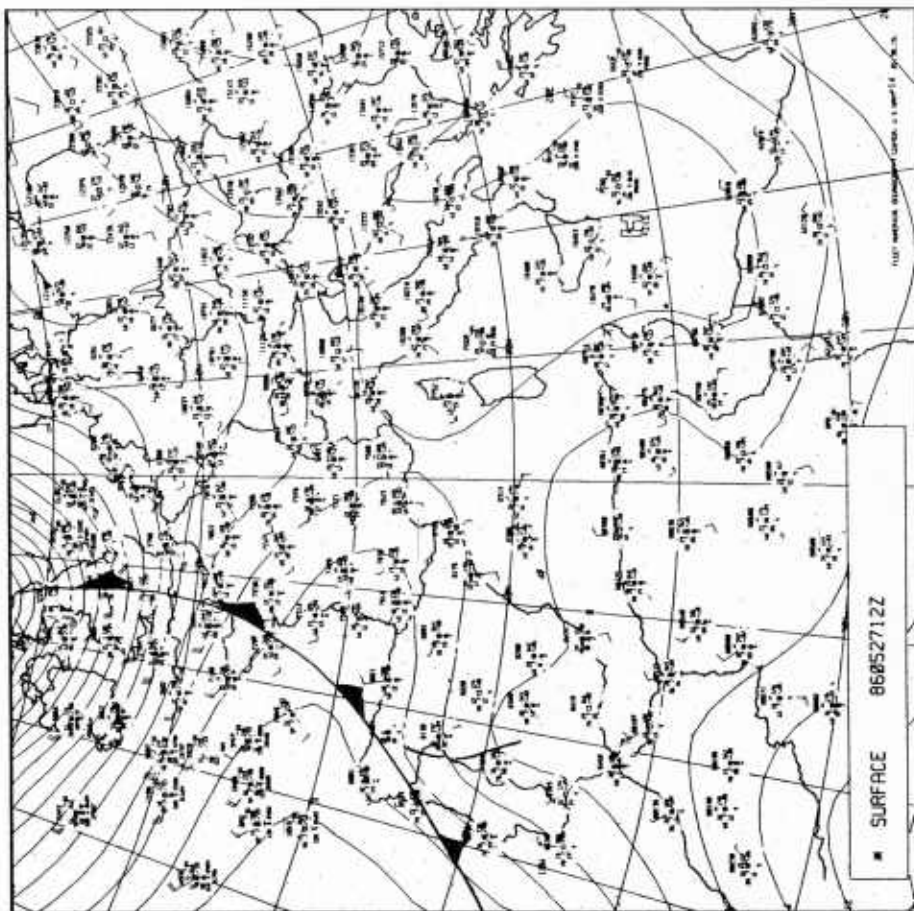
A broad inverted trough extends from Algeria to Corsica. A 1022 mb high is situated over Malta. A cold front approaches Europe. Fog is being reported from Cagliari and Sardinia to Malta while dense cirrus is being observed along the North African coast.



The inverted trough that was over Corsica at 00Z has weakened. An Atlantic cold front approaches Europe. The 1022 mb high over Malta is quasi-stationary. Fog extends from Sardinia to Malta to Libya. Dense cirrus is still observed over Algeria.

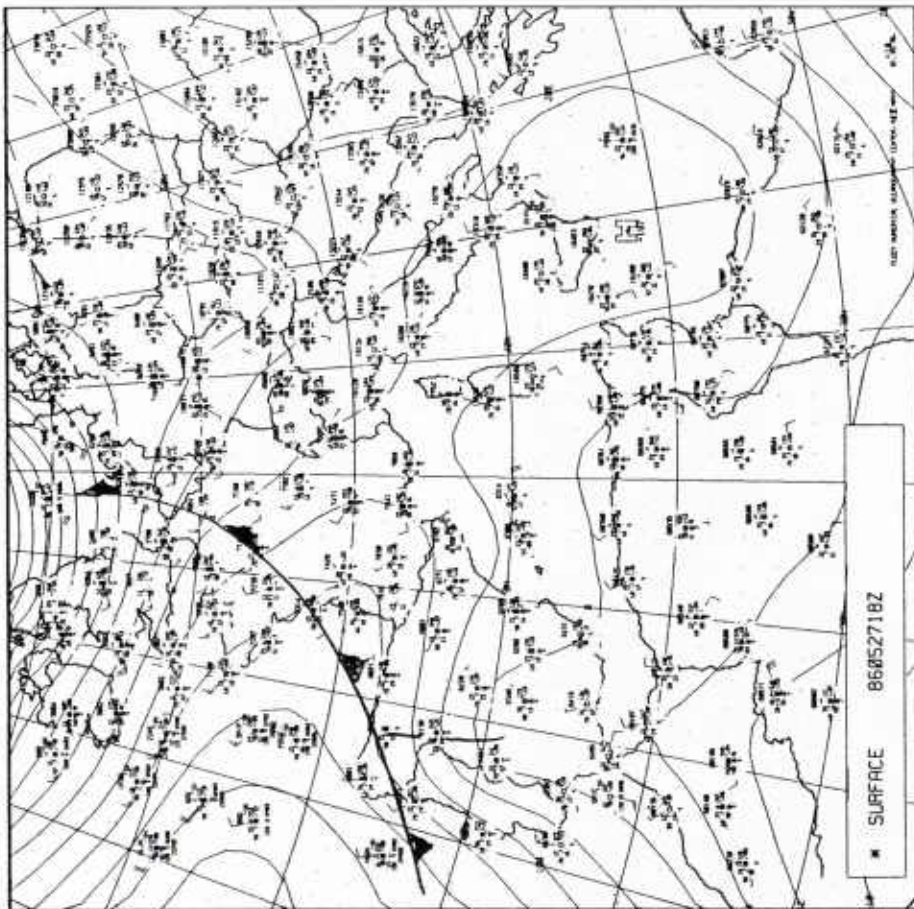


METEOSAT



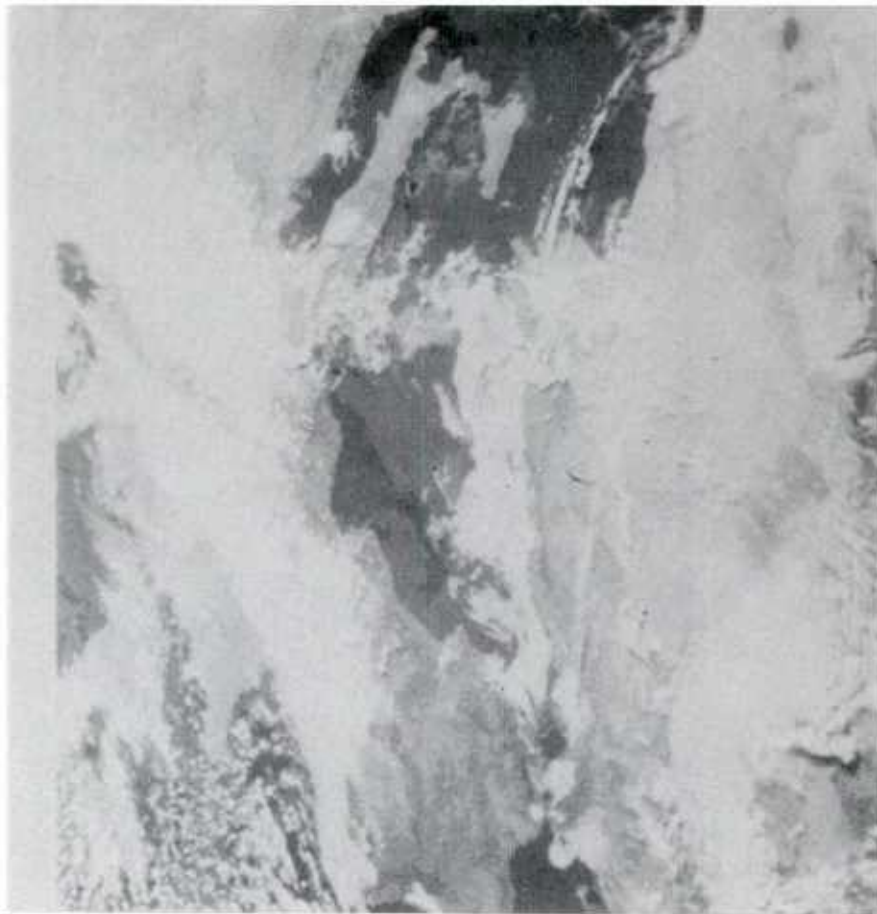
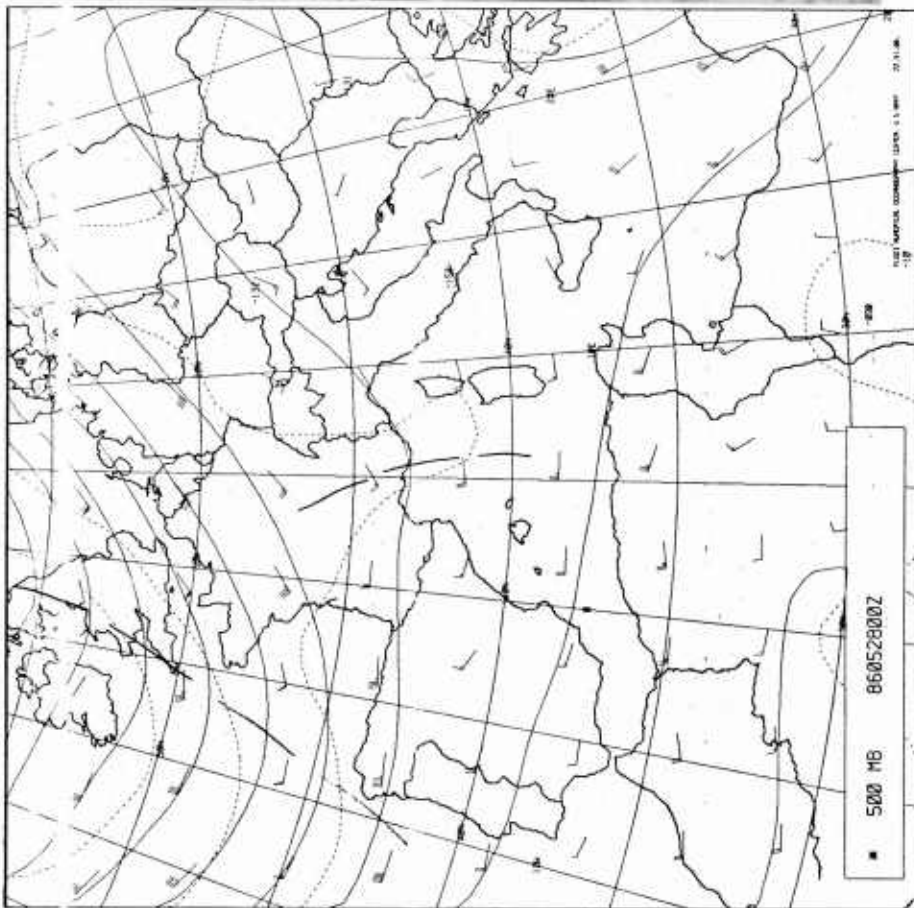
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Ridging extends from the east Atlantic through southwest France into the Gulf of Lyons. An inverted trough builds over southern Spain, steepening the isobaric pressure gradient over Portugal. Malta's high remains quasi-stationary. The Atlantic cold front rolls into western Europe. The fog from Sardinia to Libya has lifted, only Pantelleria in the Sicilian channel is reporting fog. Dense cirrus still continues over Algeria.

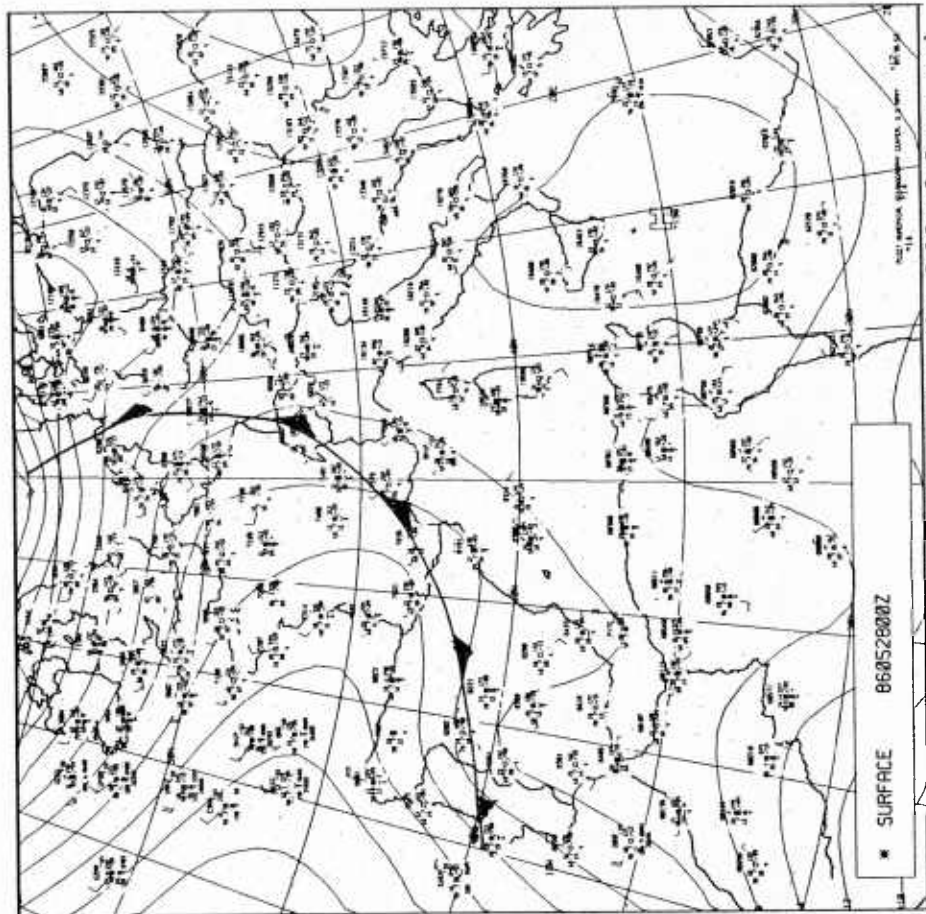


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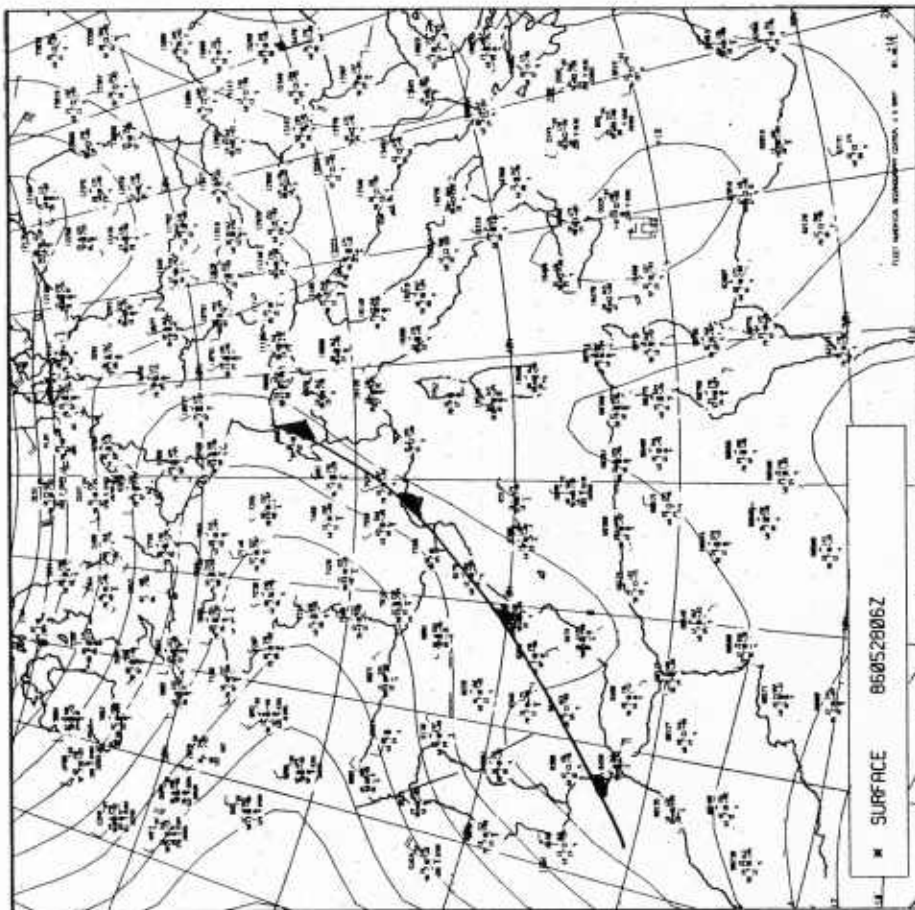
Western Europe is under the influence of a ridge of high pressure extending from the Atlantic. The inverted trough over Spain intensifies, steepening the isobaric gradient over Portugal. Quasi-stationary high pressure is situated over Malta. The slow moving cold front continues to track southwest. Low visibility (6 km) is being reported in the Sicilian channel. Dense cirrus still is observed along the Algerian coast.



28 MAY 86 0700 GMT VIS

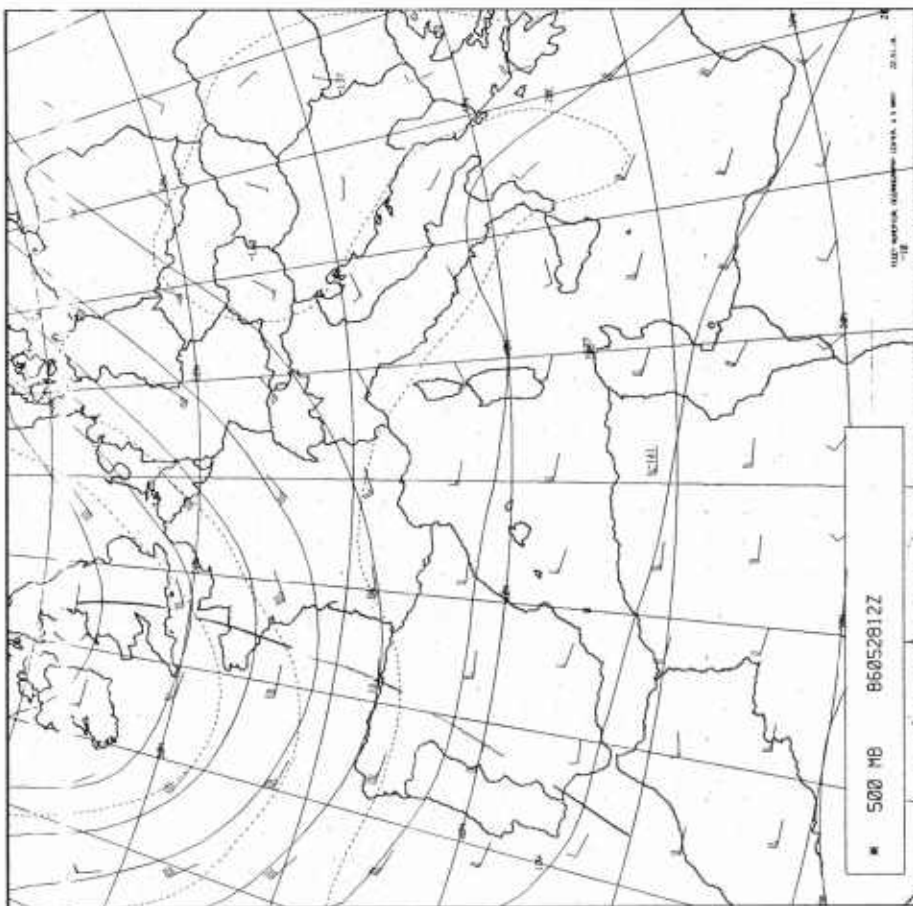


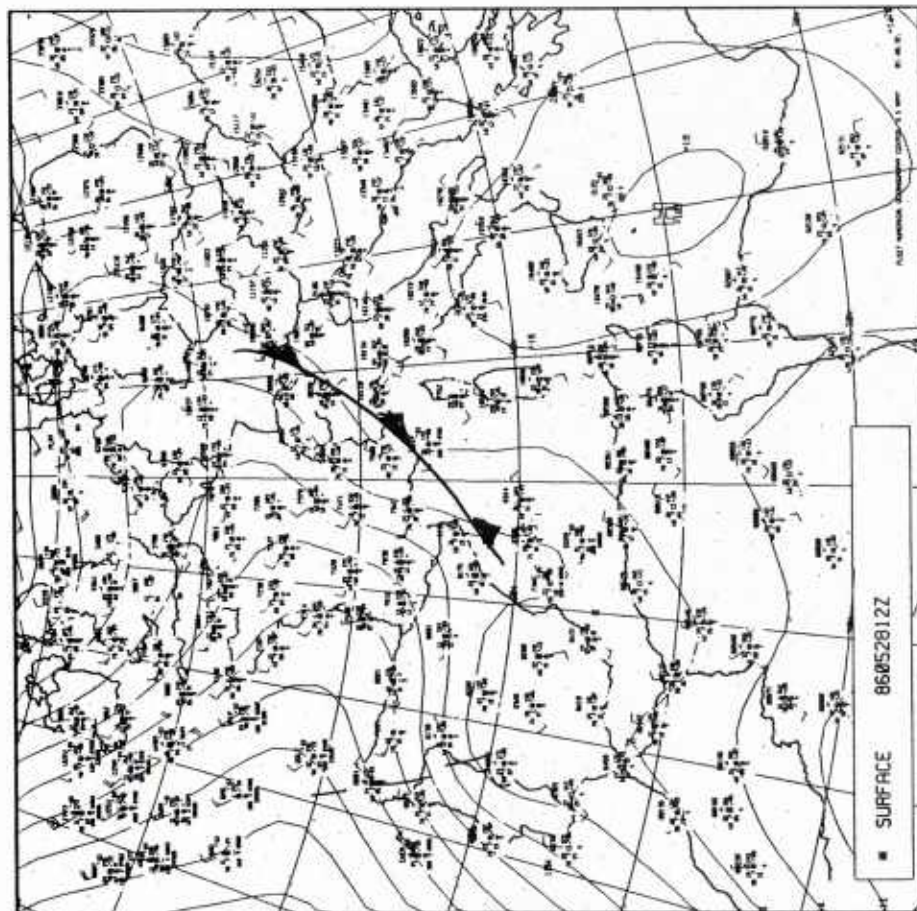
Ridging from the Atlantic reaches the Gulf of Lyons and the northern Spanish Mediterranean coast. The steep gradient over Portugal is maintained as the inverted trough over Spain stalls. Quasi-stationary high pressure is situated over Malta. A cold front extends across Europe. Fog is again reported in Sardinia and the Sicilian channel with visibility near 8 km.



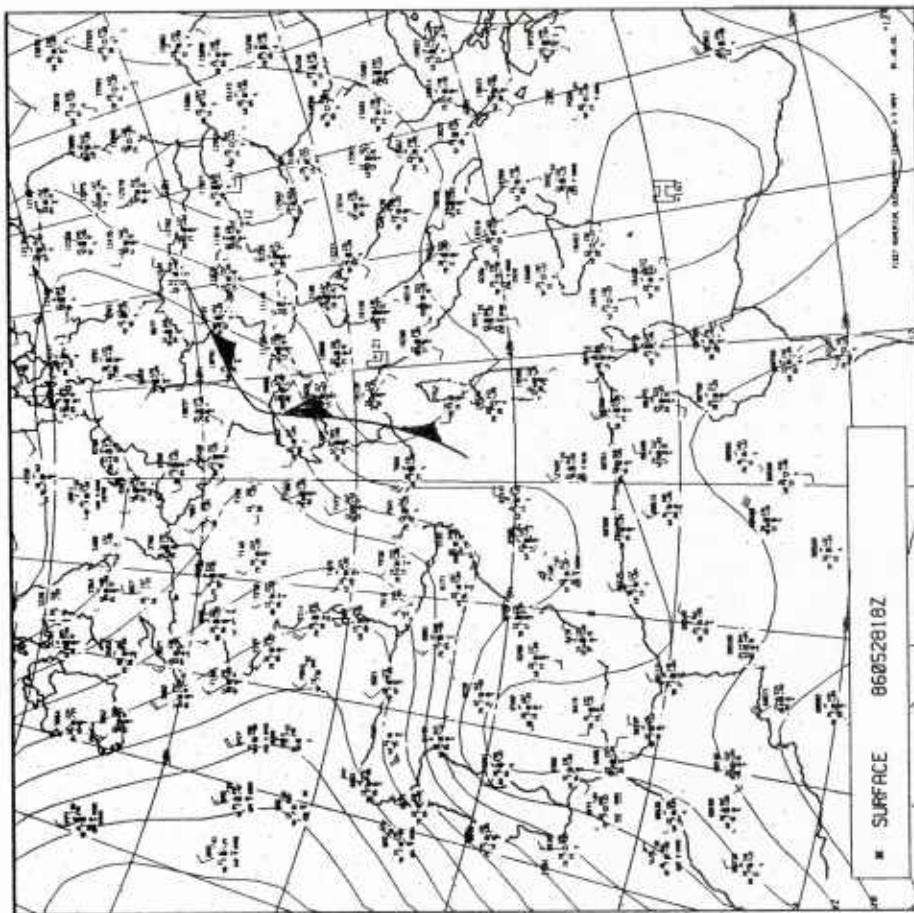
France is dominated by ridging from the Atlantic while the stalled inverted trough keeps the gradient over Portugal steep. Malta's high pressure remains quasi-stationary. The European cold front approaches the West Med. Fog is reported by the coastal stations ringing the Tyrrhenian Sea. Cu and Sc clouds are being reported along the Algerian Coast.

NOTE: There is evidence of cyclonic wind circulation in the Gulf of Genoa. The ship near 43N 0006E is reporting AC, which is verified by the 0700Z visual satellite picture for this date.

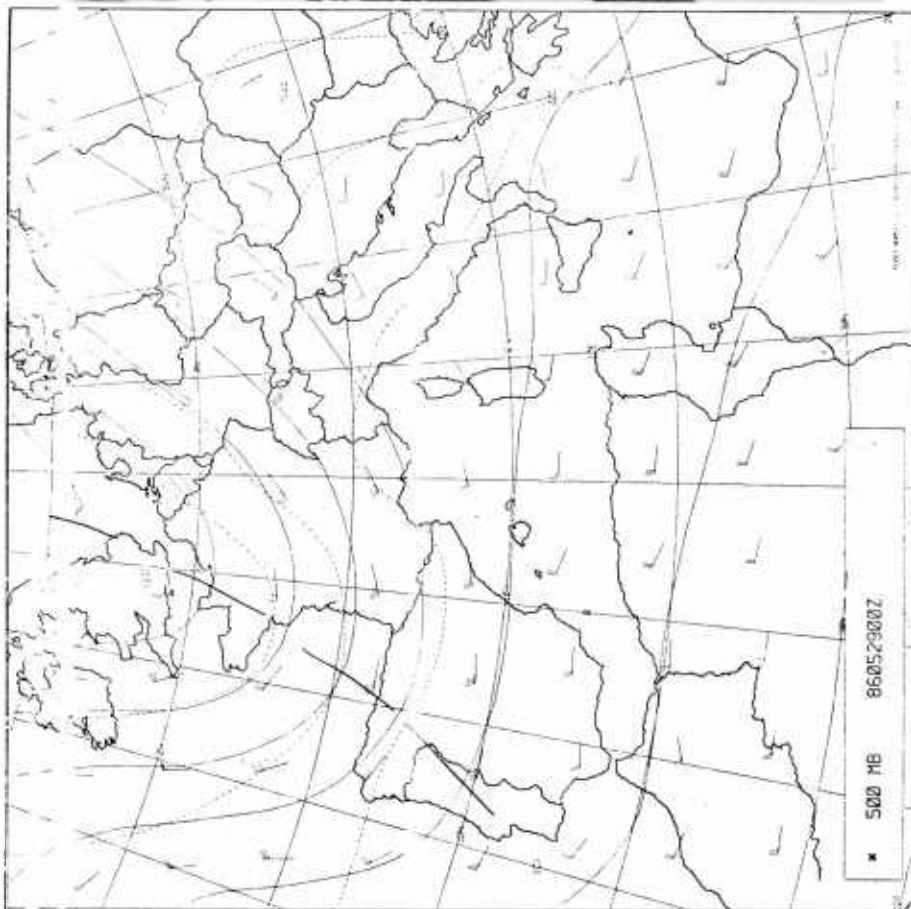




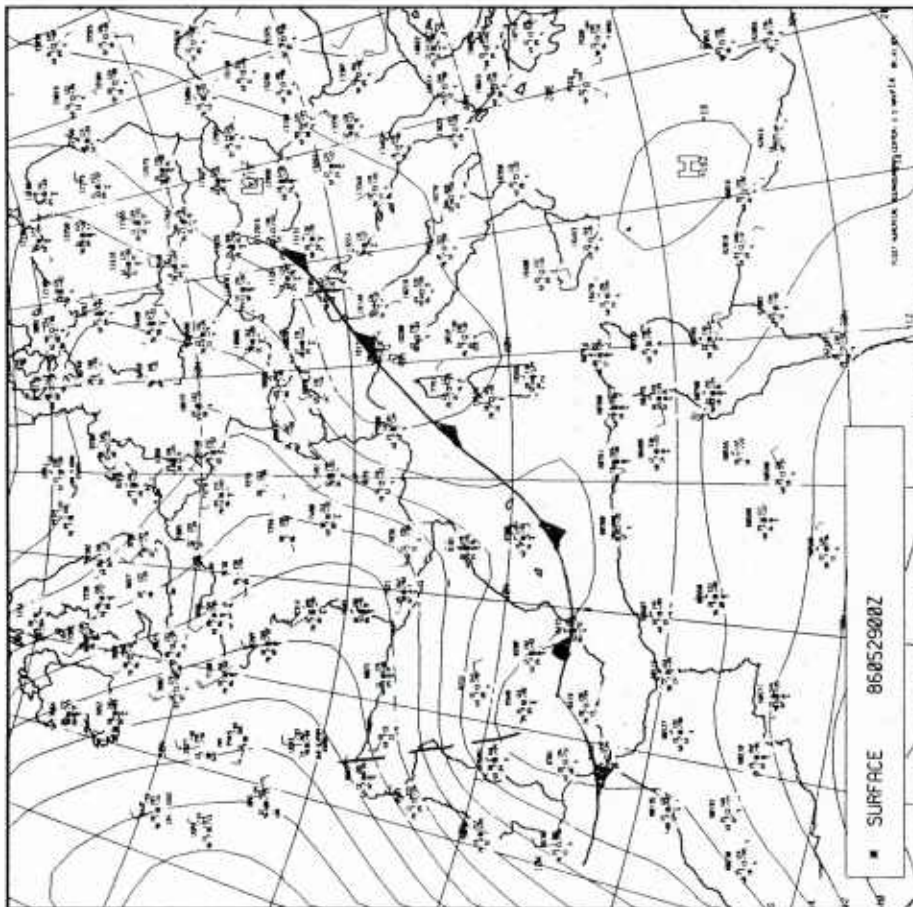
The Atlantic High continues ridging into Europe while the inverted trough over the Strait of Gibraltar and western Spain intensifies. The high in the central Mediterranean has moved southeast. The front over Europe weakens but is still discernible in the 1155Z 28 May visual METEOSAT picture. Light fog with visibility ranges of 4-8 km are being reported from the Sicilian Channel to Southern Sardinia.



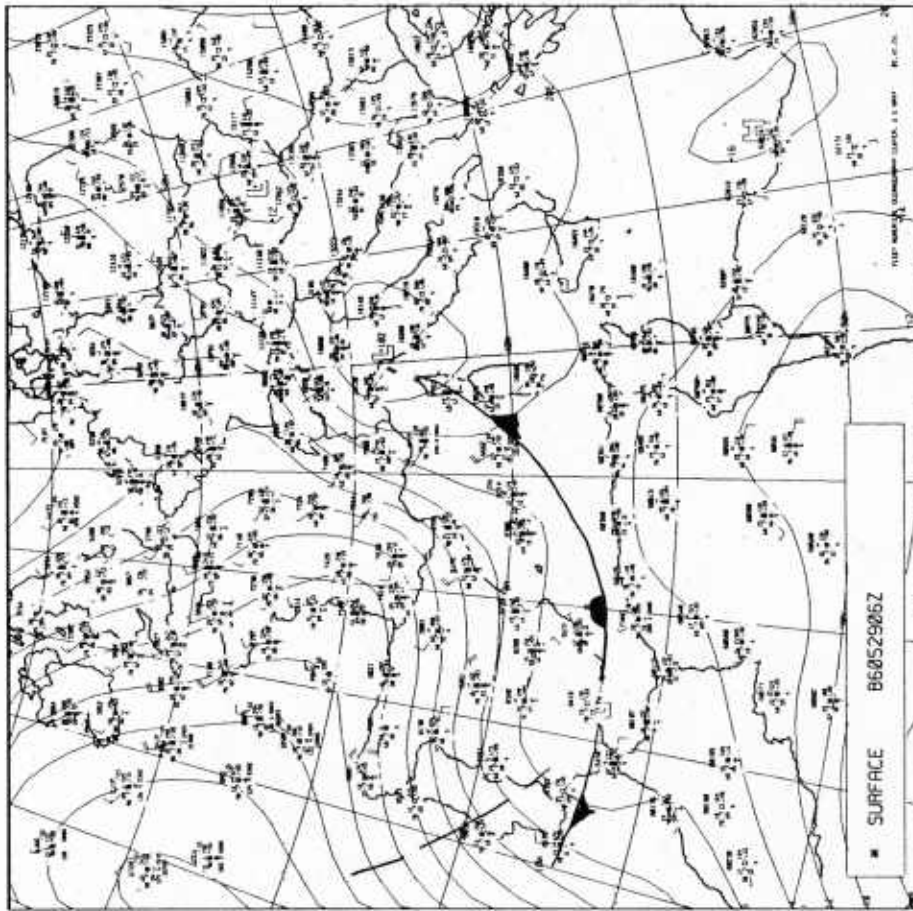
Ridging reforms along the French/Spanish border to over the Balearic Islands. The inverted trough over the Strait of Gibraltar is intensifying. The mid-Mediterranean High continues its southeast drift. The European cold front moves into northern Italy. Weak cyclogenesis is evident in the Gulf of Genoa.



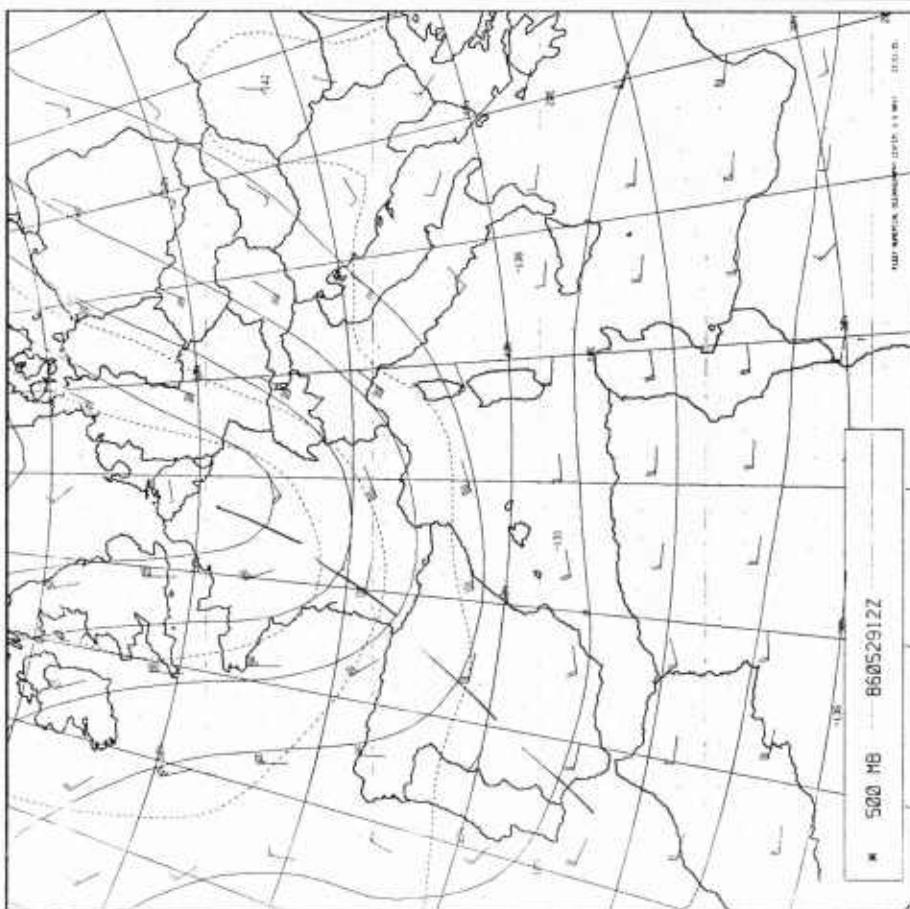
29 MAY 86 1400 GMT VIS



In the western Mediterranean, the inverted trough continues over Spain. Ridging extends into northern Europe and along the Pyrenees to the Balearic Islands. Satellite imagery depicts and verifies the cold front through the western Med. Weak cyclogenesis continues in the Gulf of Genoa. Fog is reported along the northern west coast of Italy while the mid-Mediterranean High continues tracking southeast.



Pressures continue falling in the Alboran Sea as a cyclogenesis occurs over Malaga. A closed low appears over La Spezia in northwest Italy. The mid-Mediterranean High is now located over the Gulf of Sirte. The ambient air and dew point temperatures spread is small in the West Med. Some coastal stations are reporting fog with visibility between 5-8 km. The front continues tracking southwest.

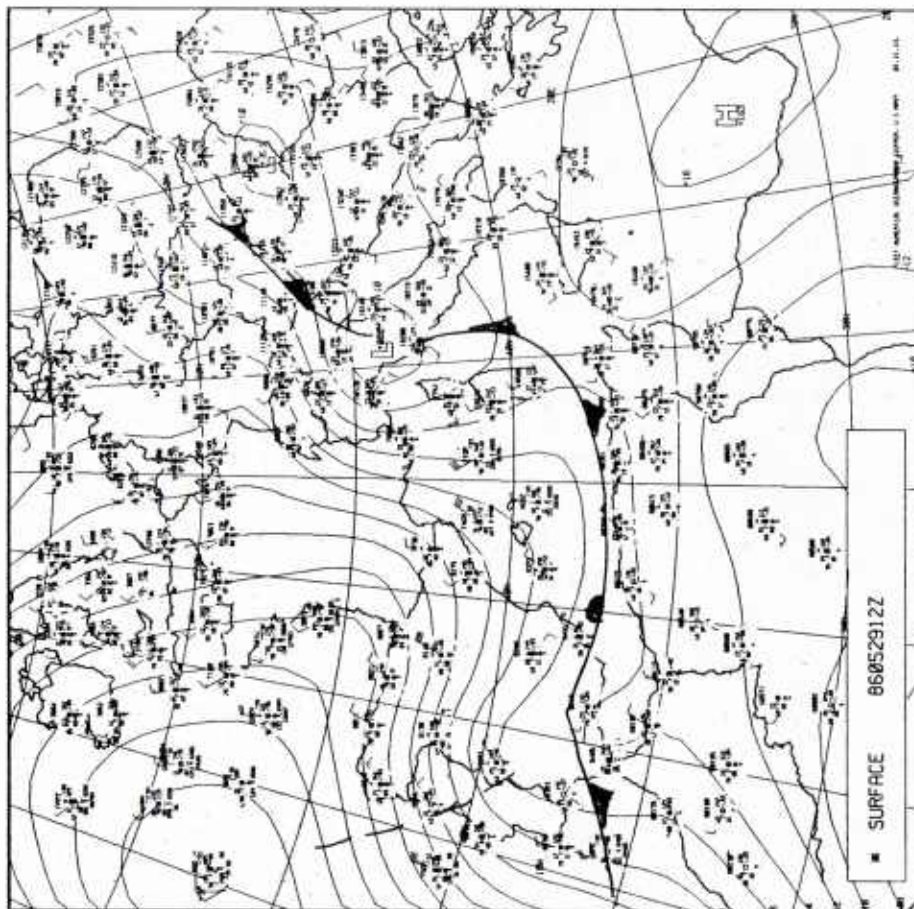


The short wave trough moves over western Europe and amplifies. The southern end of the shortwave trough shears off over Portugal and remains stationary.

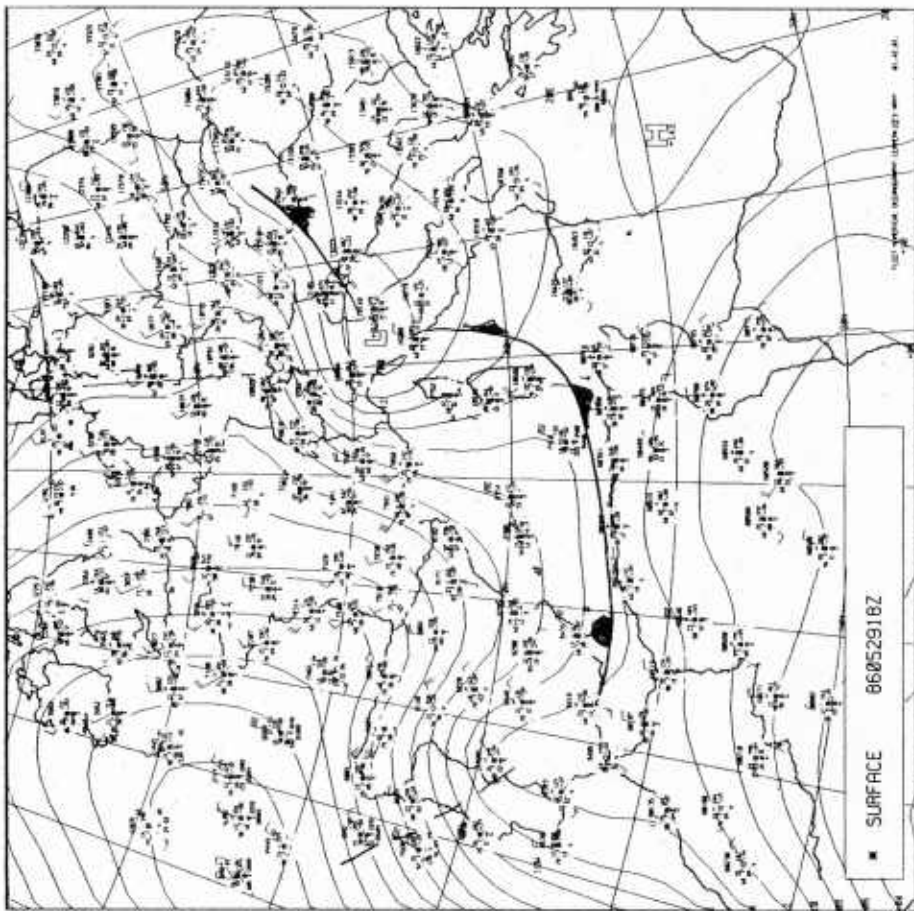


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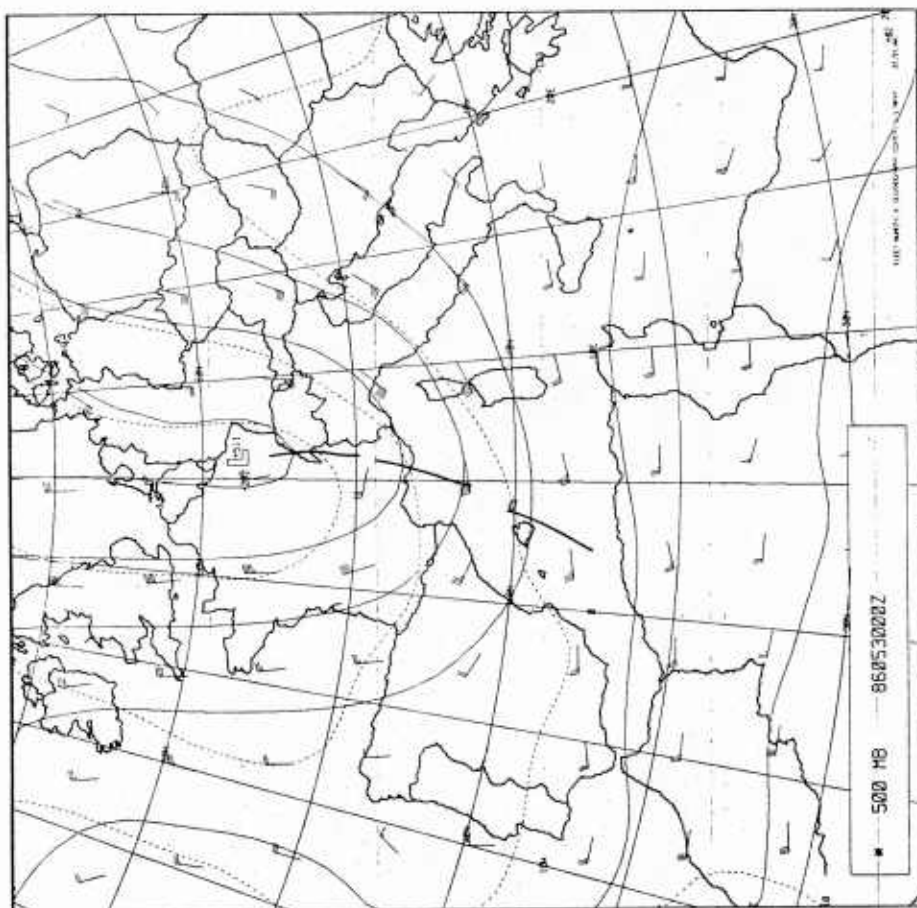


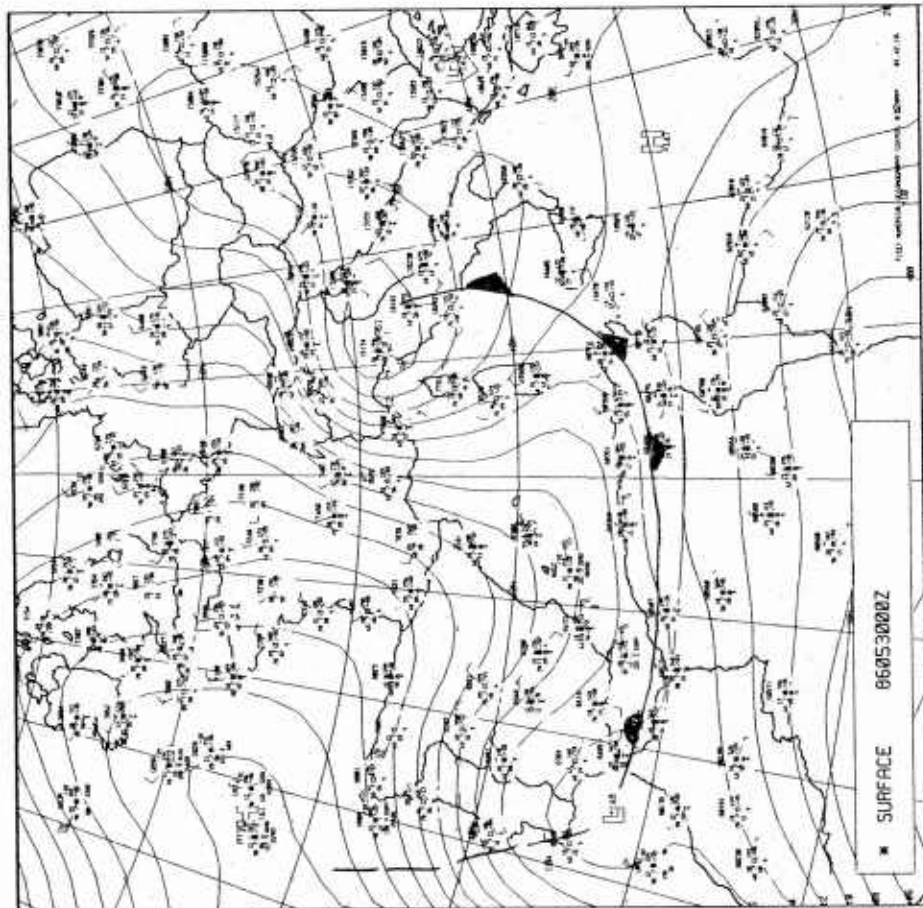
Pressures continue to fall over southern Spain, steepening the gradient and increasing winds over the western coast of the Iberian peninsula. The low over La Spezia, Italy moves inland. The high over the Gulf of Sirte remains quasi-stationary. Satellite imagery shows a cloud deck extending from the Gulf of Genoa to the east coast of Spain. Surface stations report cumulus and strato-cumulus overcasts.



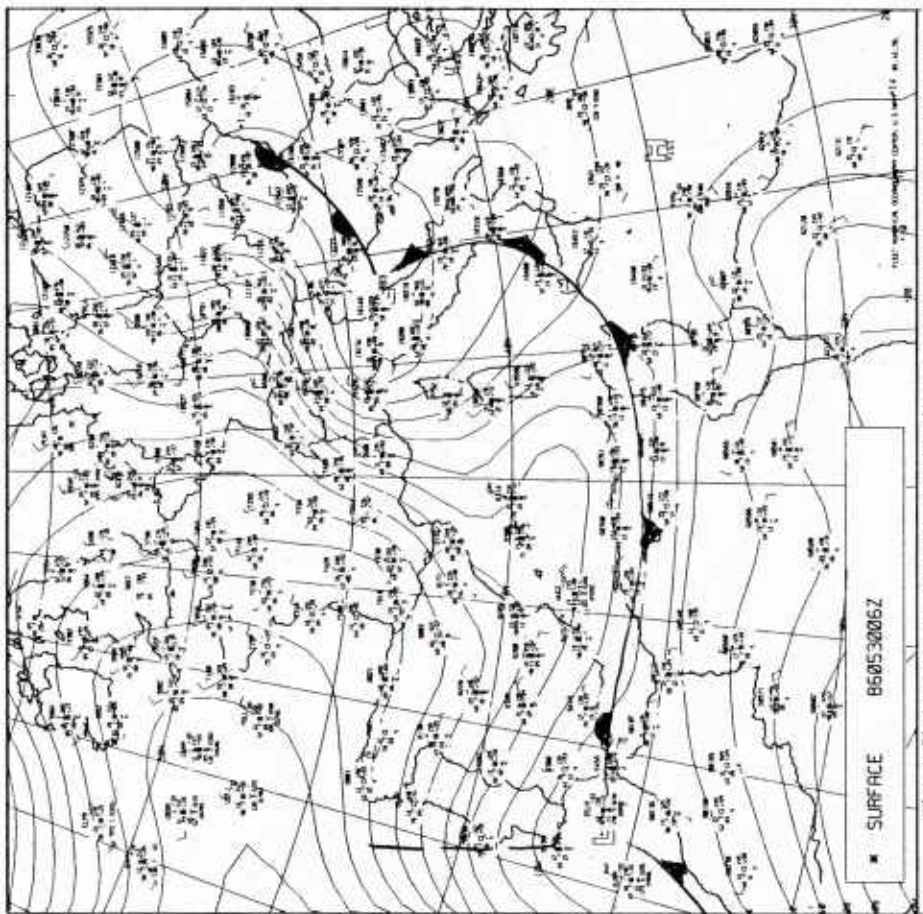
A large low over western North Africa slowly moves north. The low over northern Spain continues to steepen the gradient offshore, while ridging moves into the West Med from the Bay of Biscay. The low over northern Italy deepens 2 mbs and forms a complex system with a low center over Yugoslavia. Island stations in the western Med report cumulus, stratocumulus, and altocumulus clouds. Intermittent drizzle with 9 km visibility is reported by Palma, Mallorca, Spain.

NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME

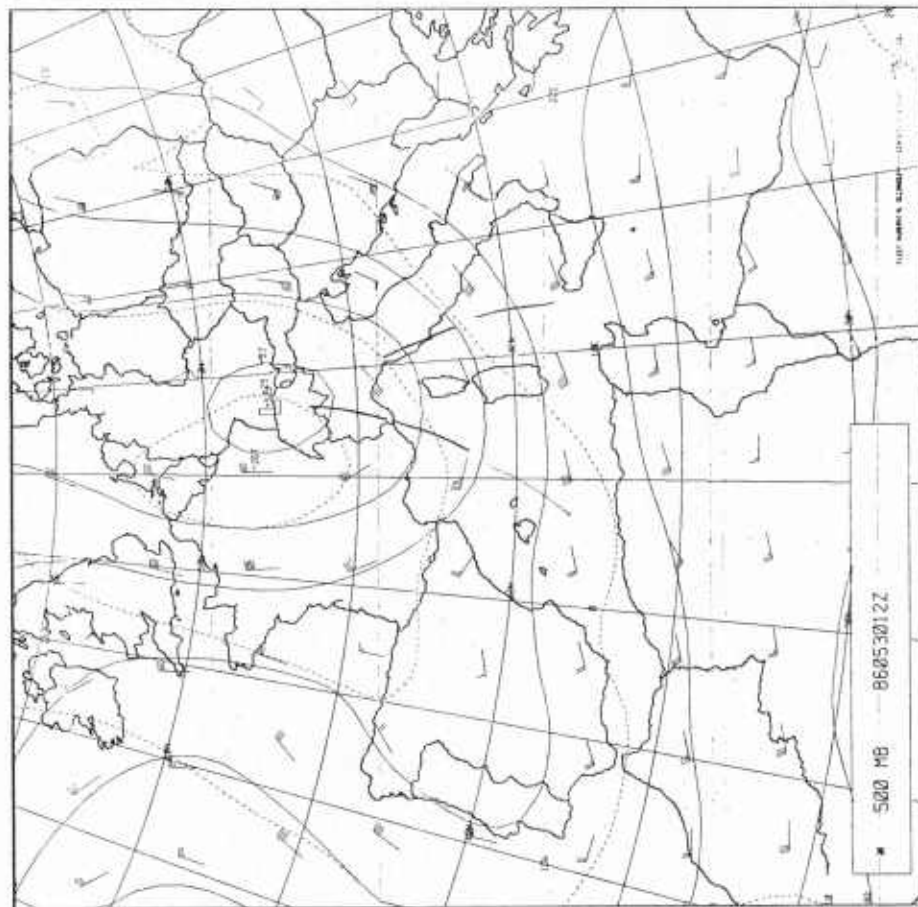




The western Med is experiencing partly cloudy skies with precipitation being reported in Mallorca. The low over Spain has moved southwest to the western entrance of the Strait of Gibraltar. Overcast skies are reported on Sardinia and the coast of North Africa. The low over northern Italy remains stationary. The western Med front is moving into North Africa and the central Med.



The Alboran Sea and northern Africa stations report partly cloudy to overcast skies. The front is diffused over Sicily but strong along the northern African coast. No restriction to visibility is being reported in the western Med.

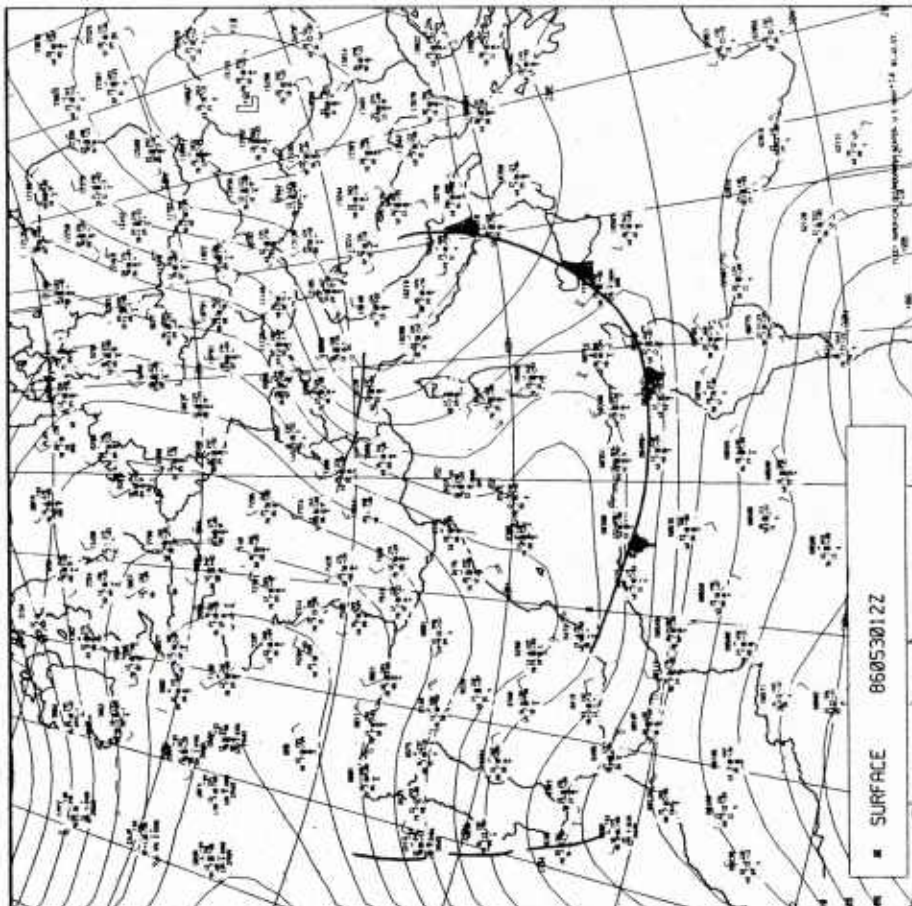


Heights continue to fall over Europe as a closed low forms over Switzerland. A series of short wave troughs pinwheel around this center. The contour analysis shows increased curvature off southwest Portugal.

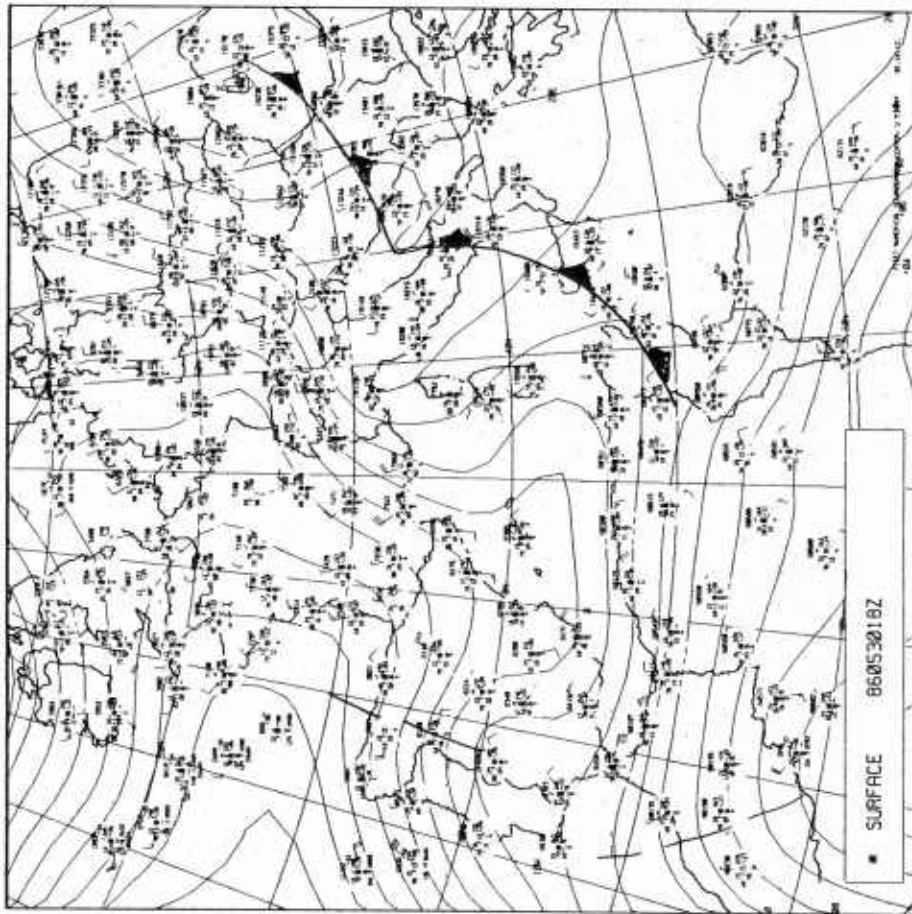


METEOSAT

1986 MONTH 5 DAY 20 TIME 1155 GMT (NORTH) CH. VIS 2
 NOMINAL SCENE FROM DATA SLOT 24 COPYRIGHT - ESA -

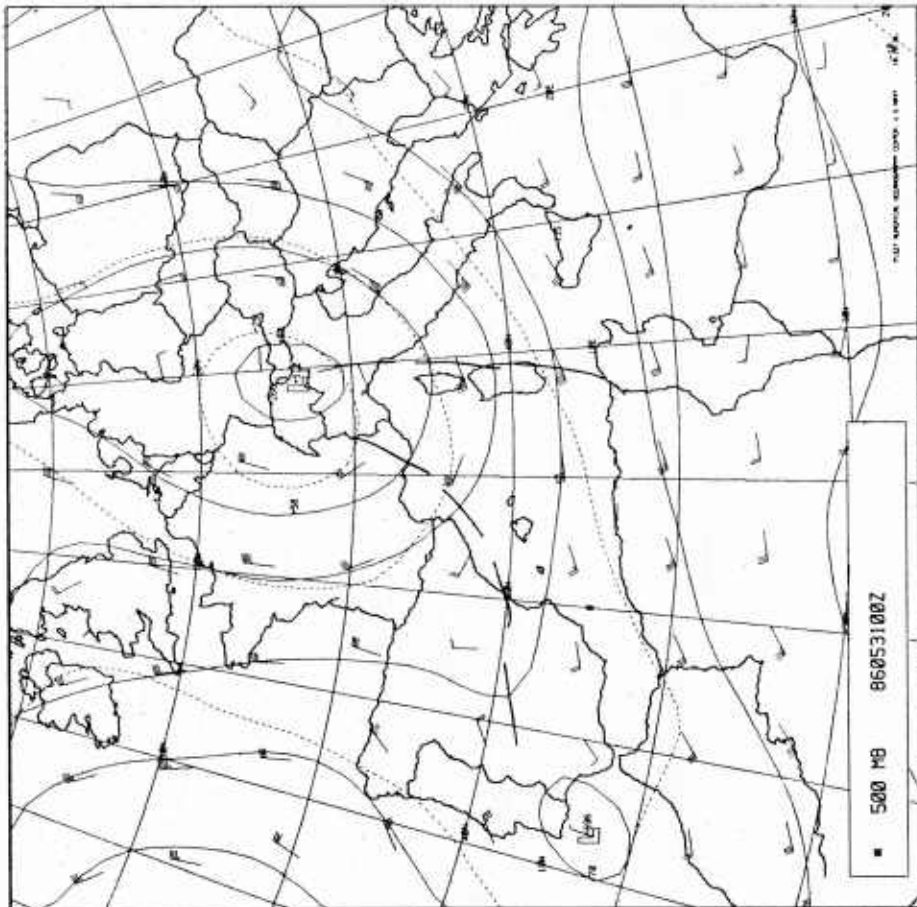


Northerly flow dominates the western Med. An inverted trough is moving into the Gulf of Genoa. Rain from cumulus and stratocumulus clouds is being reported in southern Spain. Partly cloudy skies are reported along the North African and Spanish Mediterranean coasts. An inverted trough is moving off Portugal.

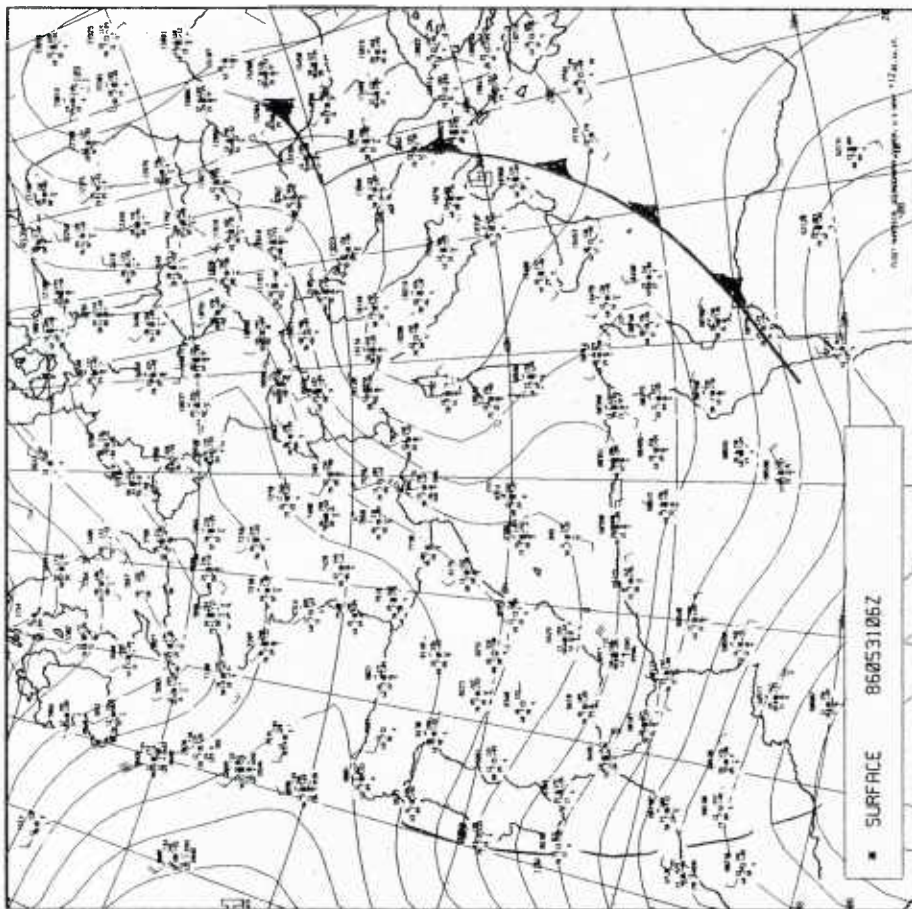
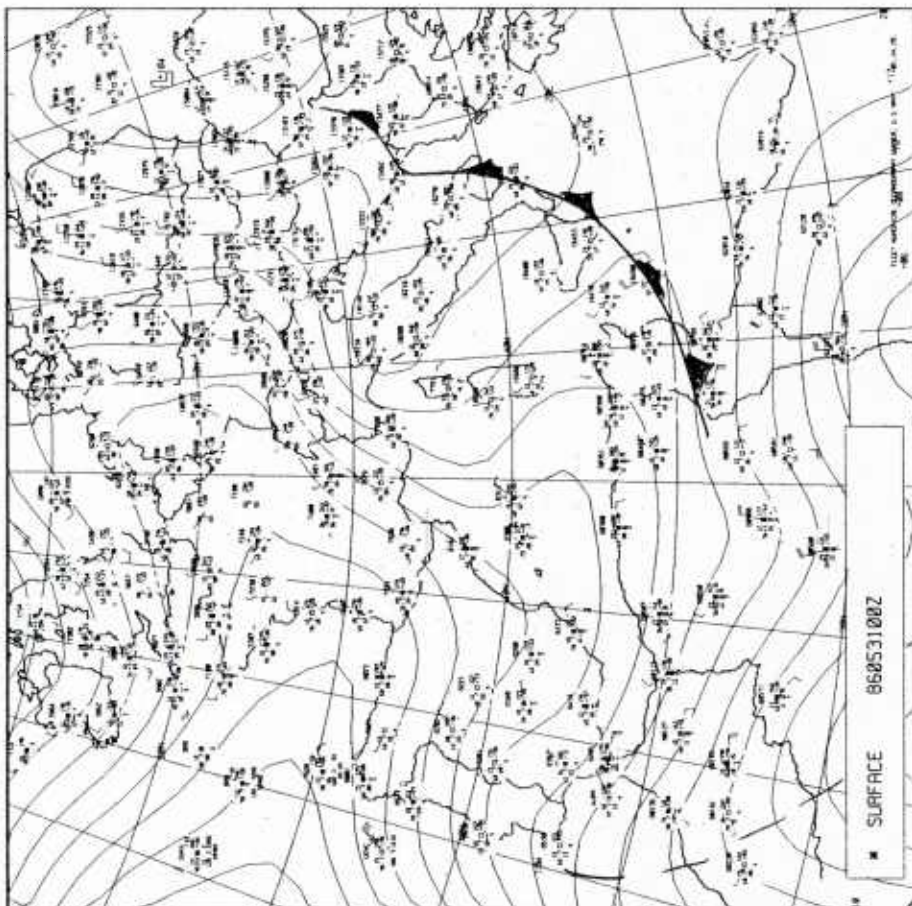


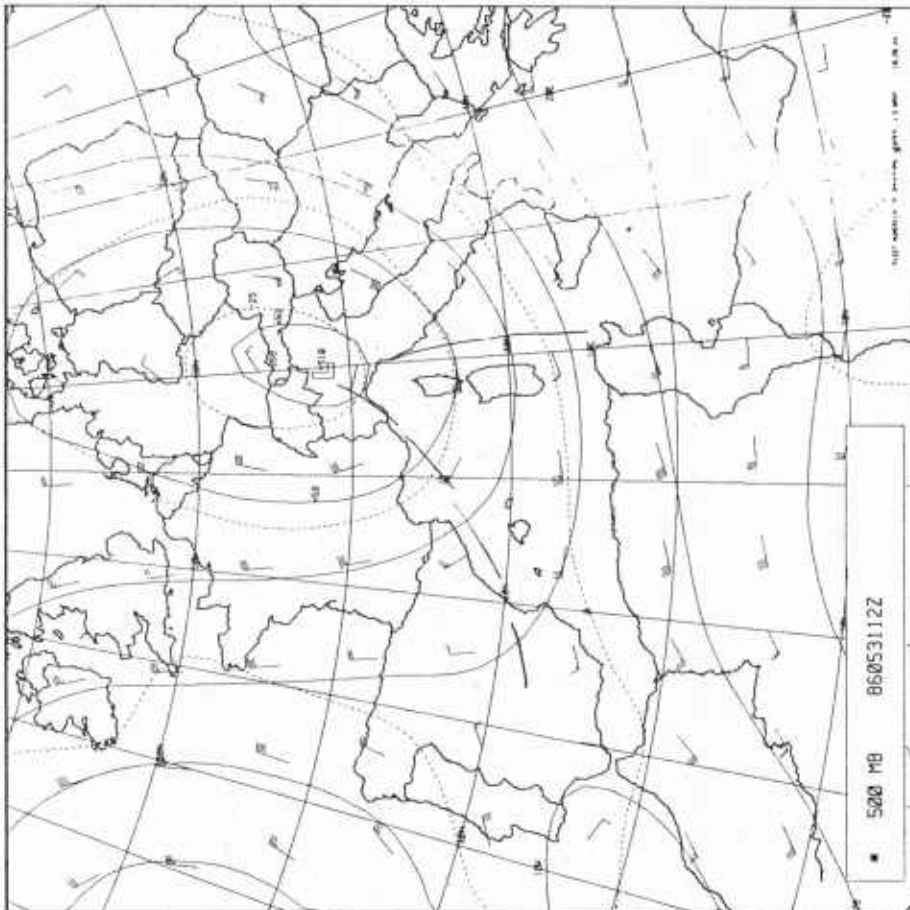
Northerly flow continues throughout the western Med with some precipitation reported in Algeria. Skies are partly cloudy to cloudy along the coast of North Africa and Spain's Mediterranean shore as onshore flow bringing moisture meets the coastal mountain ranges.

NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME



The isobaric low over central Europe tracks southeast into northern Italy. A cutoff low forms over the Gulf of Cadiz.



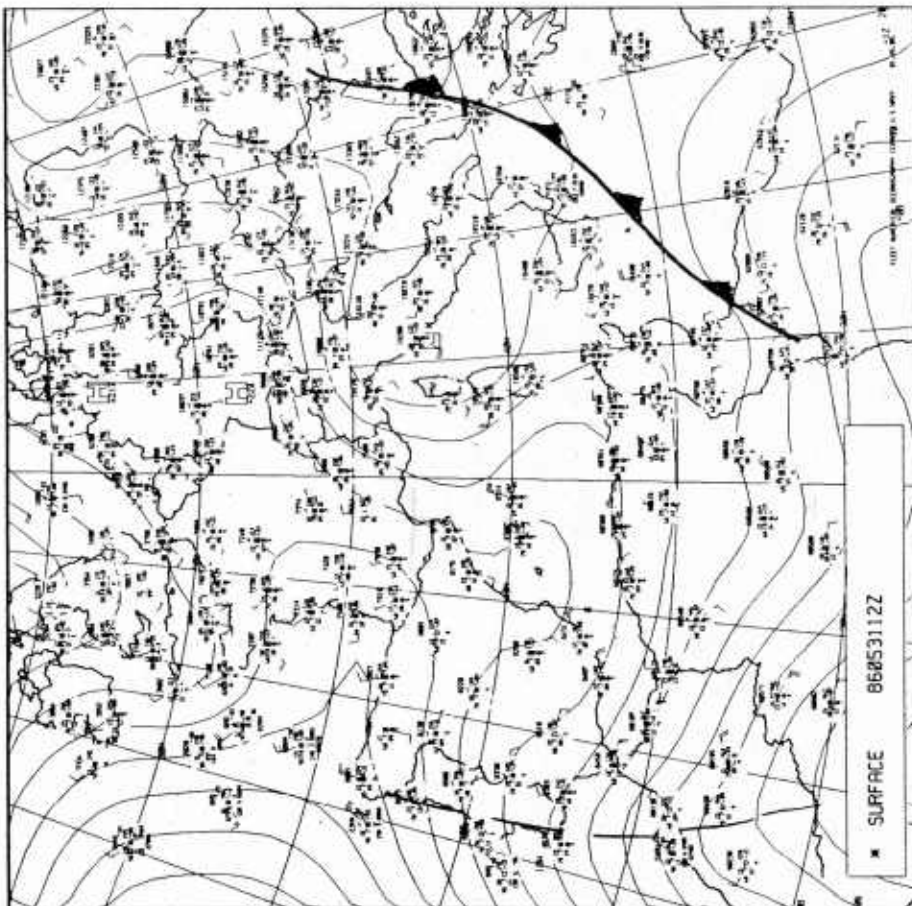


The low over northern Italy continues tracking southeast while shortwaves pinwheel about its center. A 50 kt jet exists south of Sardinia to central Italy. The low south of Portugal has deepened 130 meters and has retrograded southwest.

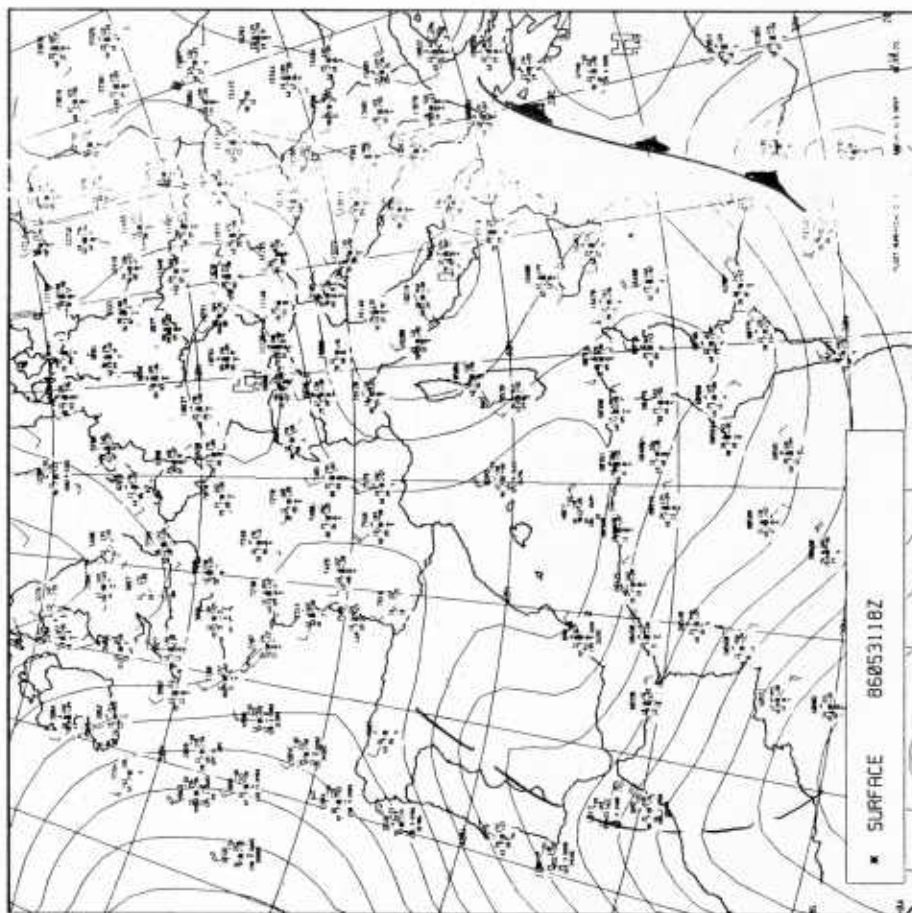


METEOSAT

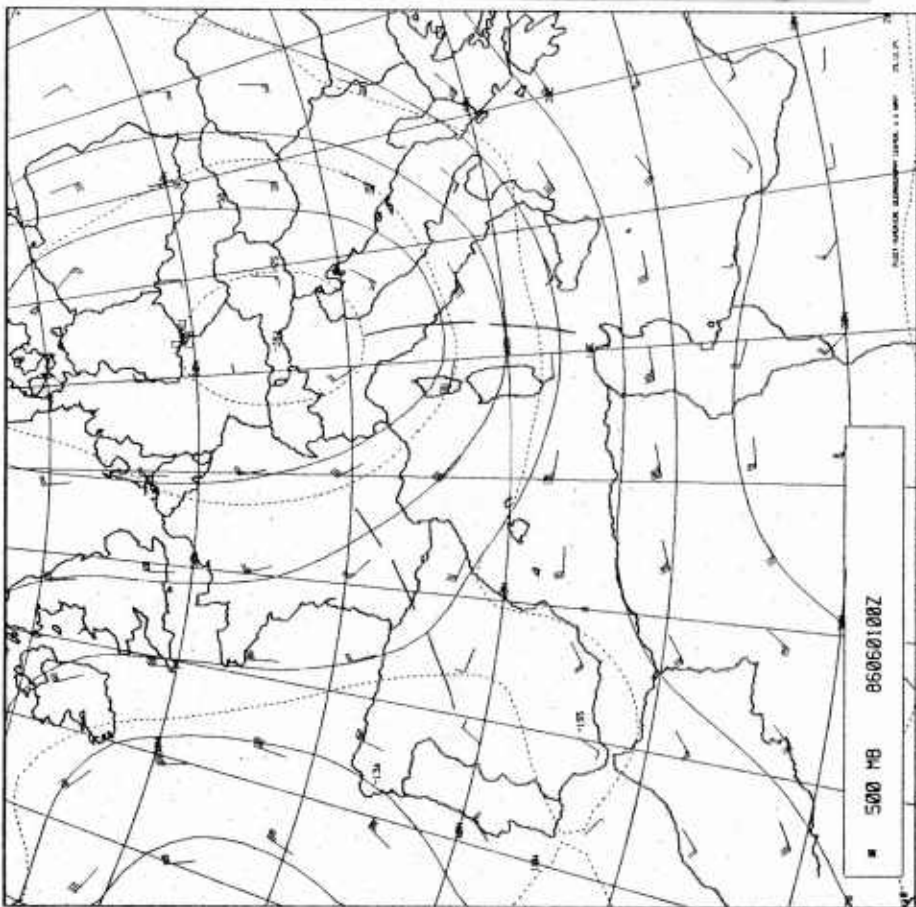
1986 MONTH 5 DAY 31 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCORP PAIR DATA SLOT 24 COPYRIGHT - ESA -



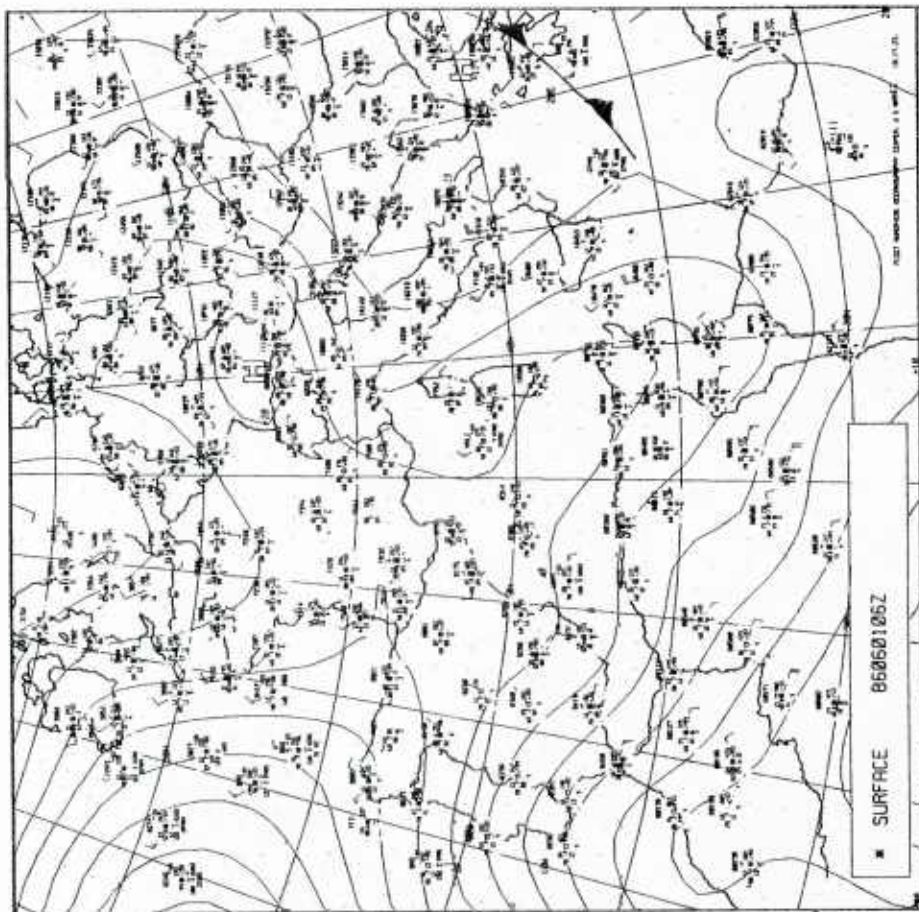
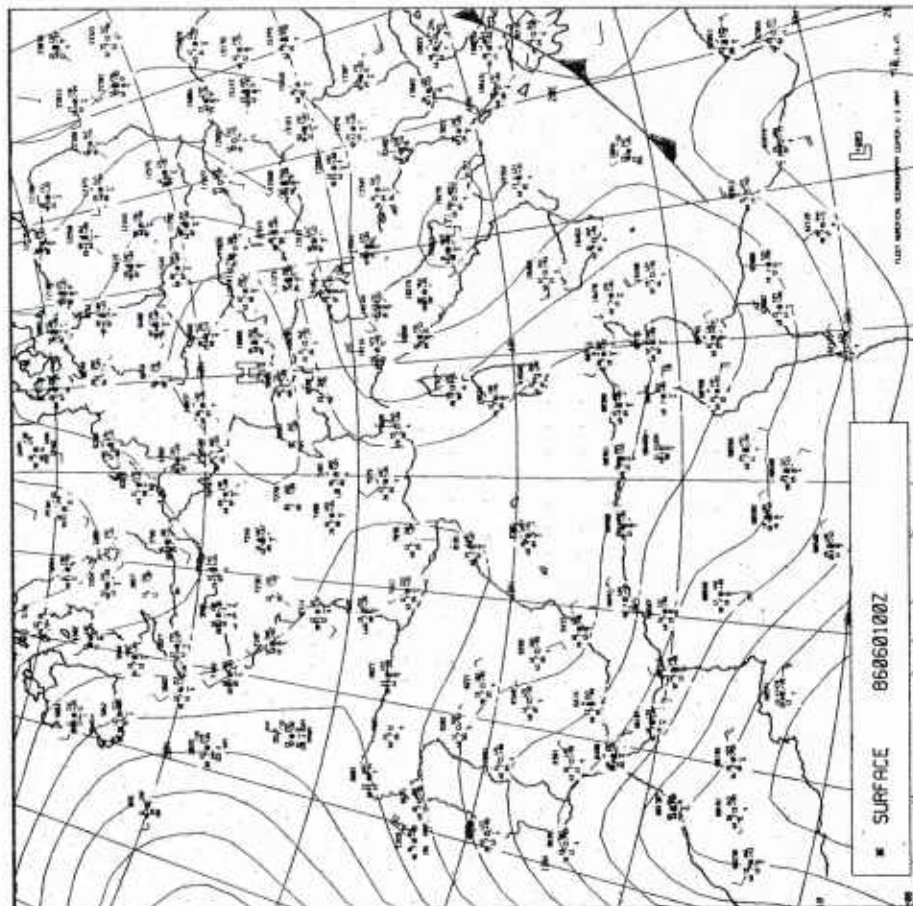
Coastal weather observations in Corsica, Sardinia and the Balearic islands report 15, 20, and 25 km visibility ranges within the northerly flow. The inverted trough over Portugal is retrograding. A low has formed off the west coast of Italy.

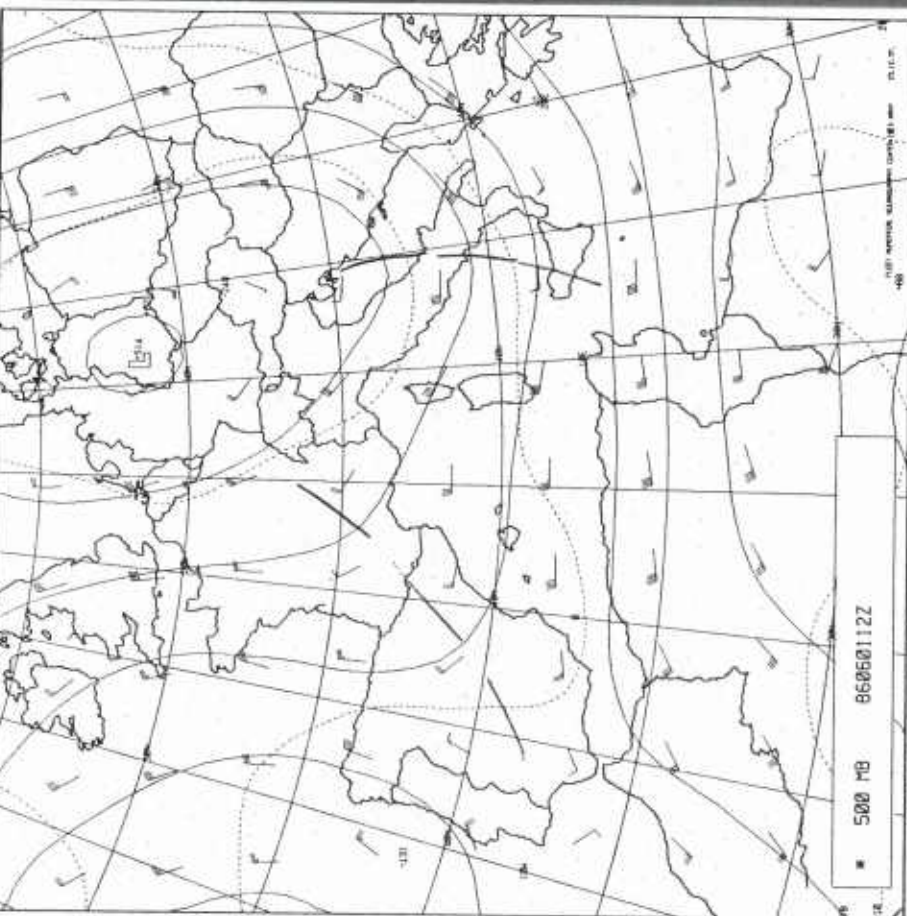


Ridging extends from the Atlantic to over the Pyrenees and into the western Med. Fog with 15 km visibility is being reported in Sardinia.



01 JUN 86 0800 GMT VIS

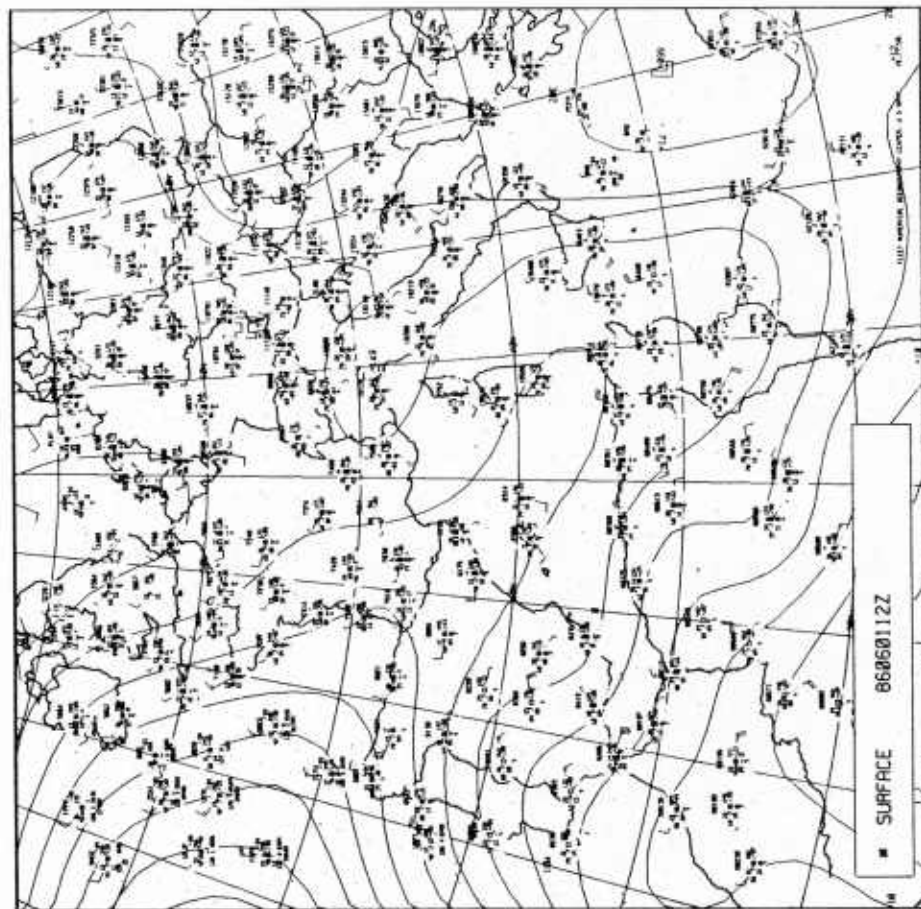




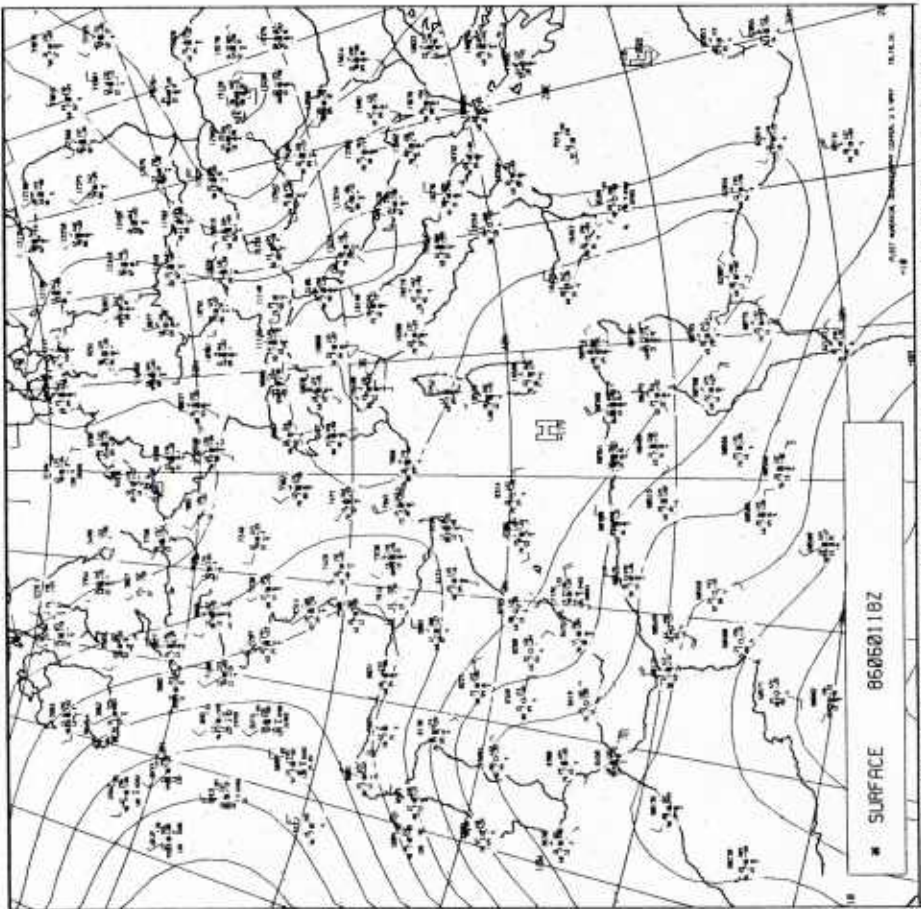
Southwesterly flow over western North Africa extends from a cut off low in the Atlantic. A quasi-stationary low is found over central Europe.

METEOSAT

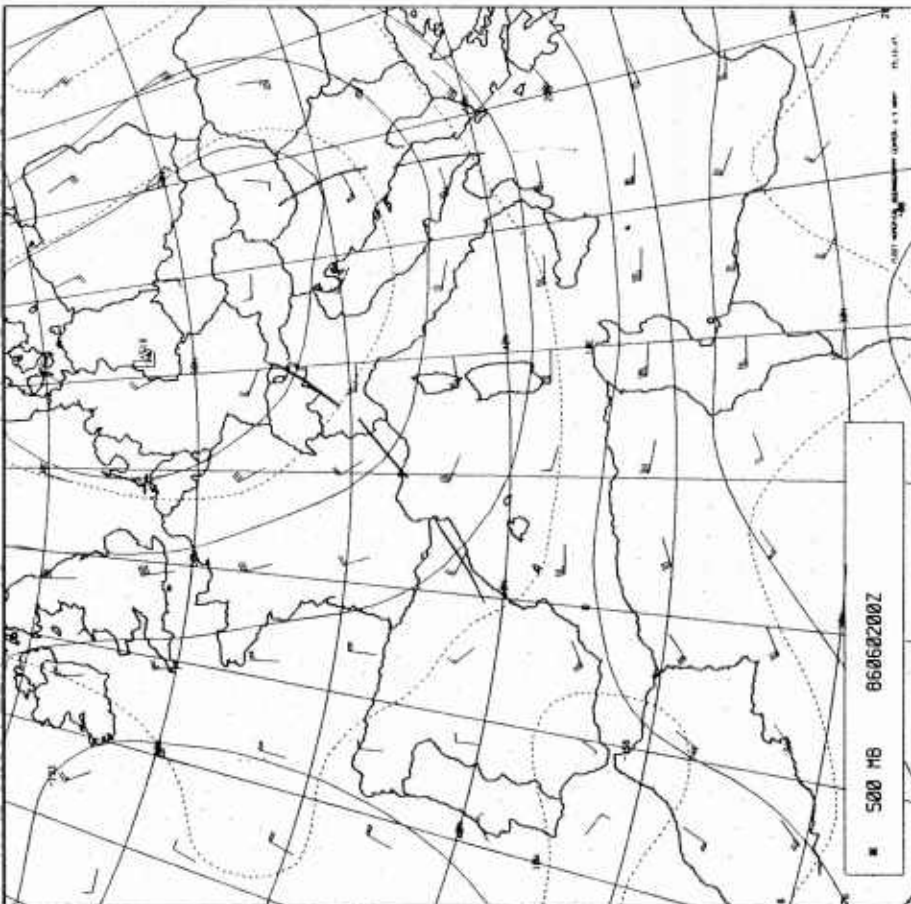
1986 MONTH 6 DAY 1 TIME 1155 GMT (MORT) CH. VIS 2
NOMINAL SCAN PAN DATA SLOT 24 COPY/RIGHT - ESA -



Ridging on the surface keeps the winds light and northerly east of Sardinia. Overcast skies of Ci are reported throughout the Alboran Sea. Visual satellite imagery gray shades depict Ci extending from the Atlantic in response to the northwesterly flow aloft at 500 mbs.



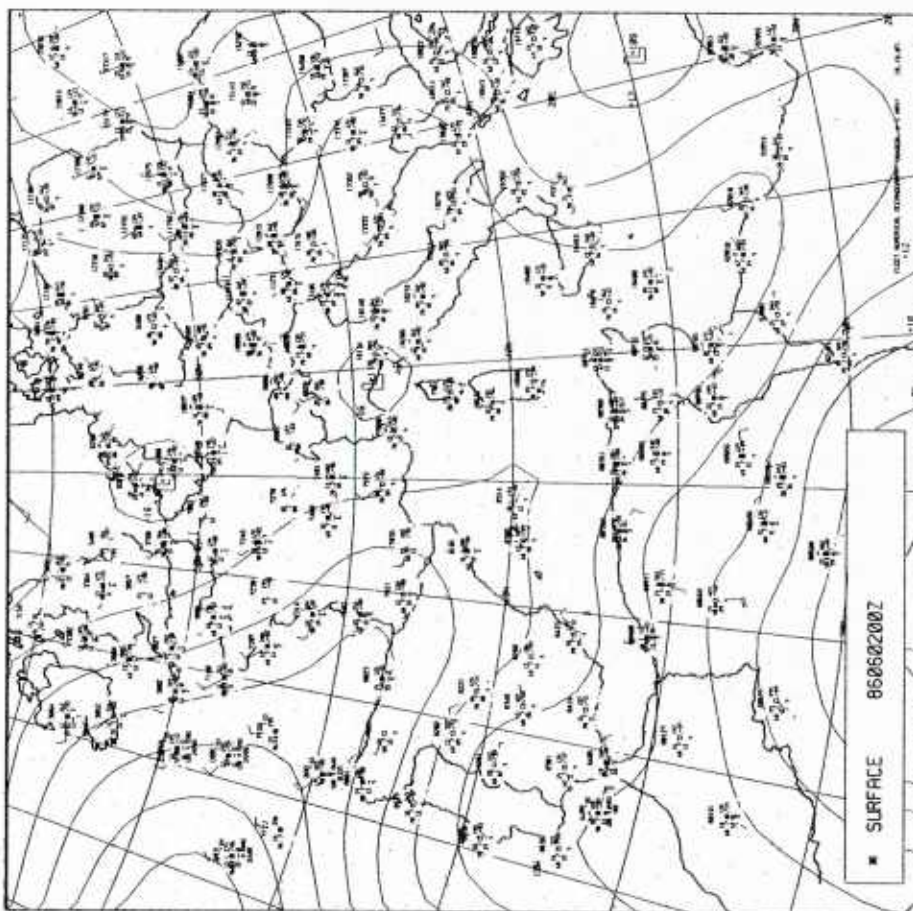
A high pressure cell has developed near Sardinia, bringing clear skies and light and northerly winds over the Tyrrhenian Sea. Coastal stations in Morocco and Algeria report overcast skies of Ci and thin Ac.



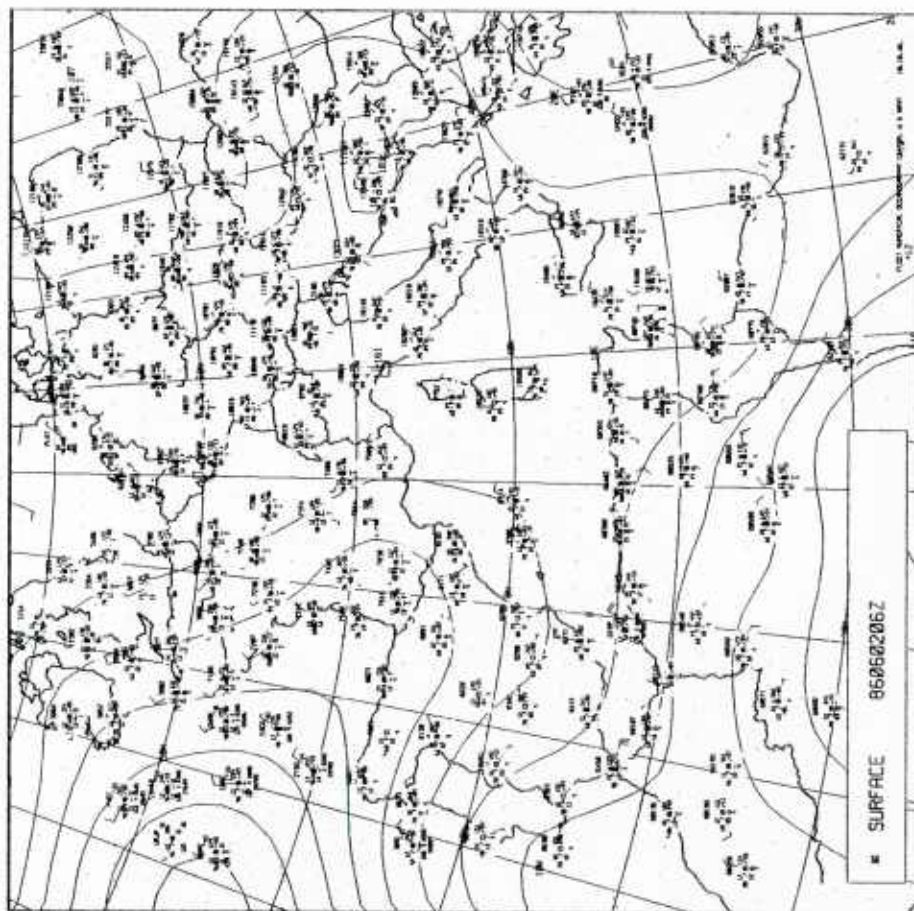
The flow over the West Med is a combination of two different sources. The northern half of the West Med is under the influence of northwesterly flow from western Europe. Southwesterly flow from the cut off low near the Canary Islands dominates North Africa and the Alboran Sea. A southwesterly jet is found over the interior of Algeria and coastal Morocco.



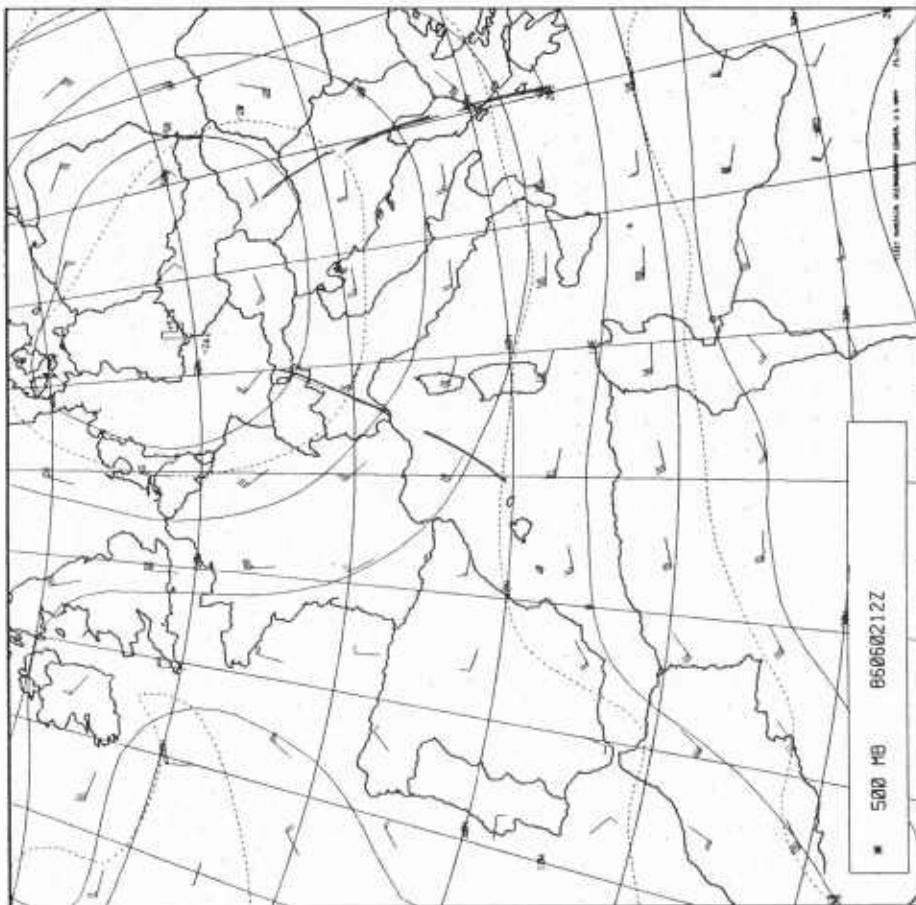
02 JUN 86 0900 GMT VIS



Flat high pressure is causing little wind throughout the western Med. Ci is reported in the Sicilian Channel. Overcast skies with a thunderstorm in progress is found at the coastal city of Alger, Algeria.



Little wind is found throughout the western Med. Active thunderstorms continue in Alger, Algeria. A Mistral is evident in the 0900Z visual satellite imagery. Alboran Sea coastal stations report nearly overcast skies of thin AC.

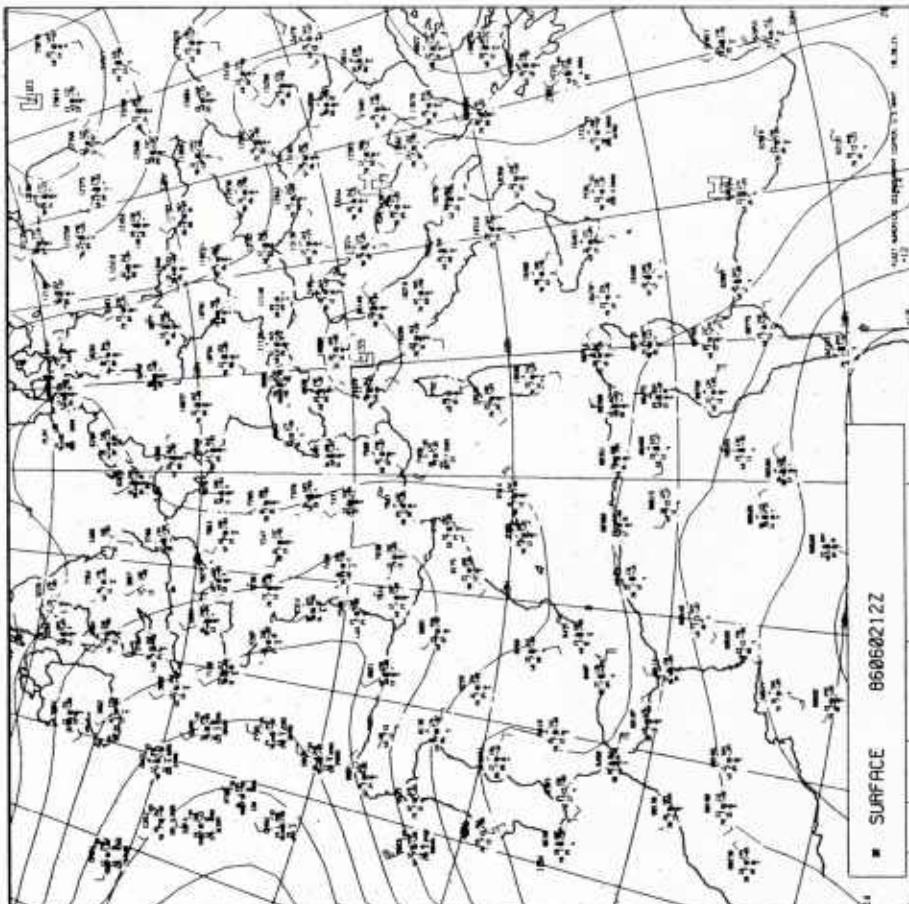


Southwesterly flow is prevalent in the southern half of the West Med. The quasi-stationary low over eastern Europe fills 110 meters. A short wave moves into northern Italy and the Ligurian Sea bringing northwesterly flow into the northern half of the experiment area.

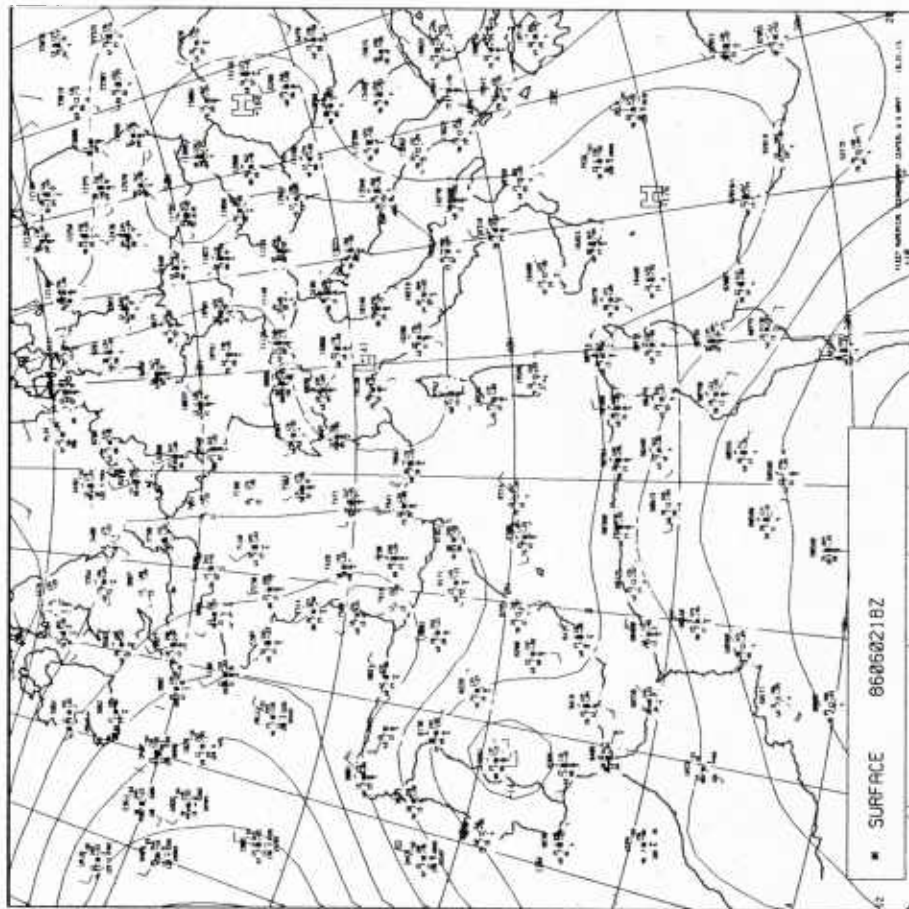


METEOSAT

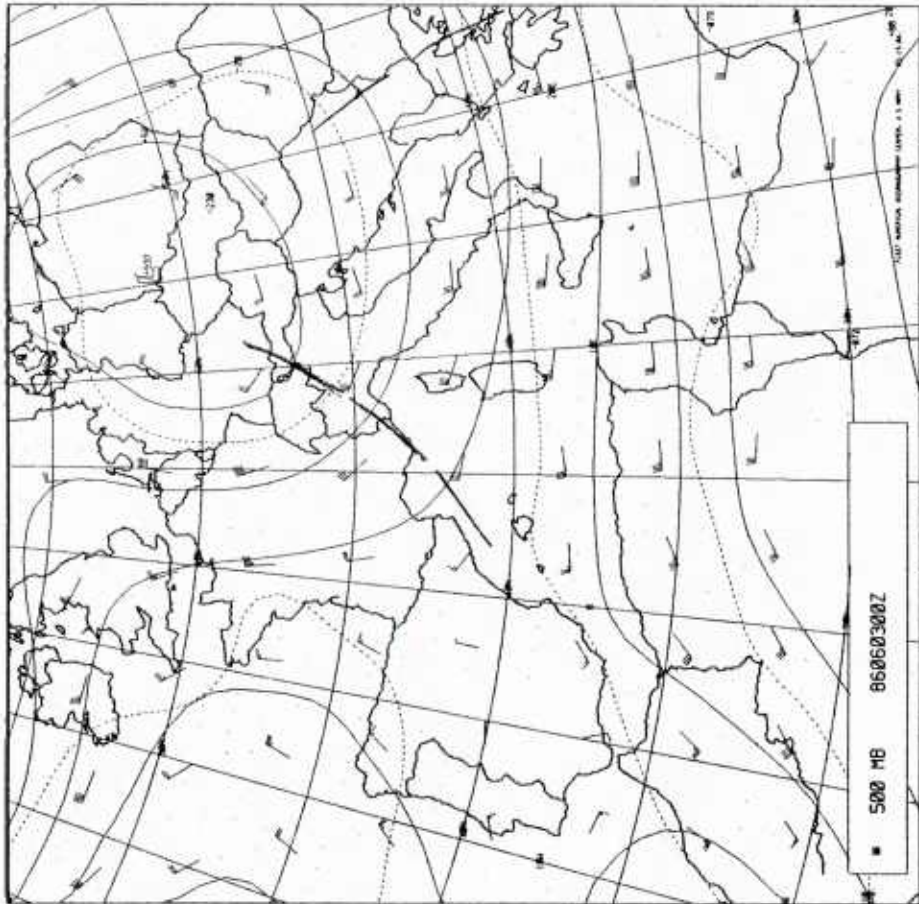
1986 MONTH 6 DAY 2 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN-RAW DATA SLOT 24 COP/RIGHT - ESA -



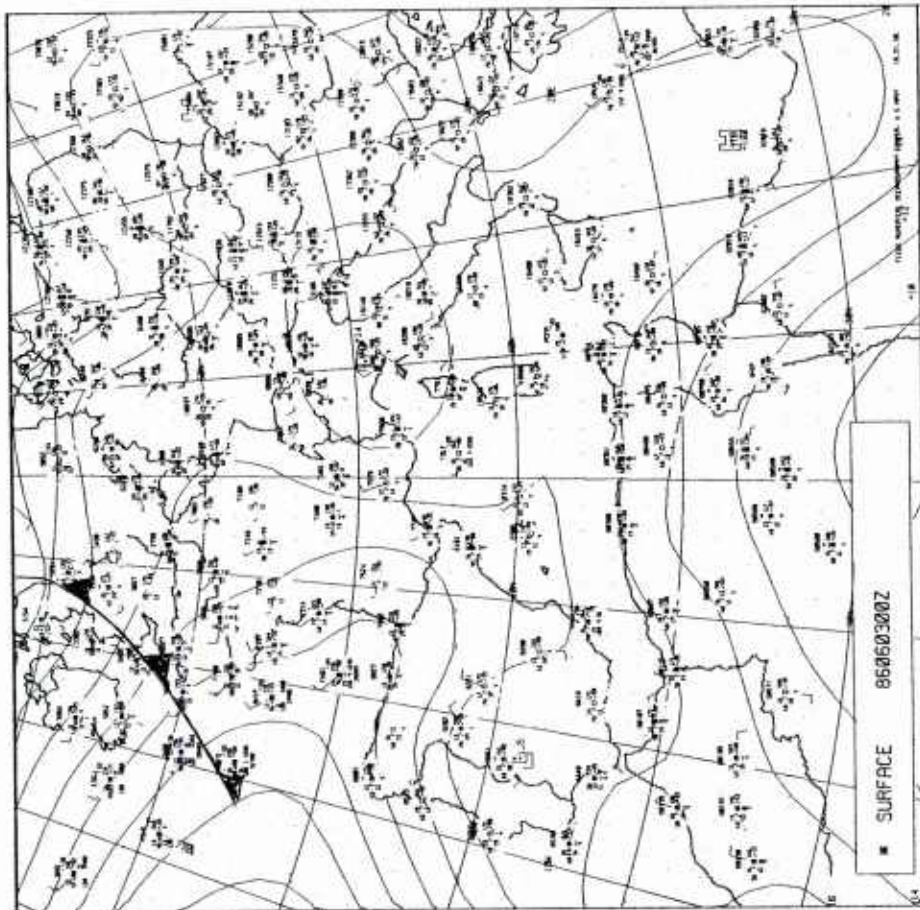
Winds increase along the north coast of Algeria as thunderstorms dissipate. Visibilities are 10-40 km in the Alboran Sea. A ship located at 42.5N 006.0E near the mouth of the Rhone Valley is reporting northwest winds at 20 kts. This is indicative of the Mistral. The 1400Z visual satellite imagery shows a dark gray shade extending from the end of the Rhone Valley to the central West Med. The gray shade pattern is produced by drier air replacing the existing marine mist/haze conditions. The drier air is a result of subsidence created by the diverging Mistral flow as it sweeps out over the sea.



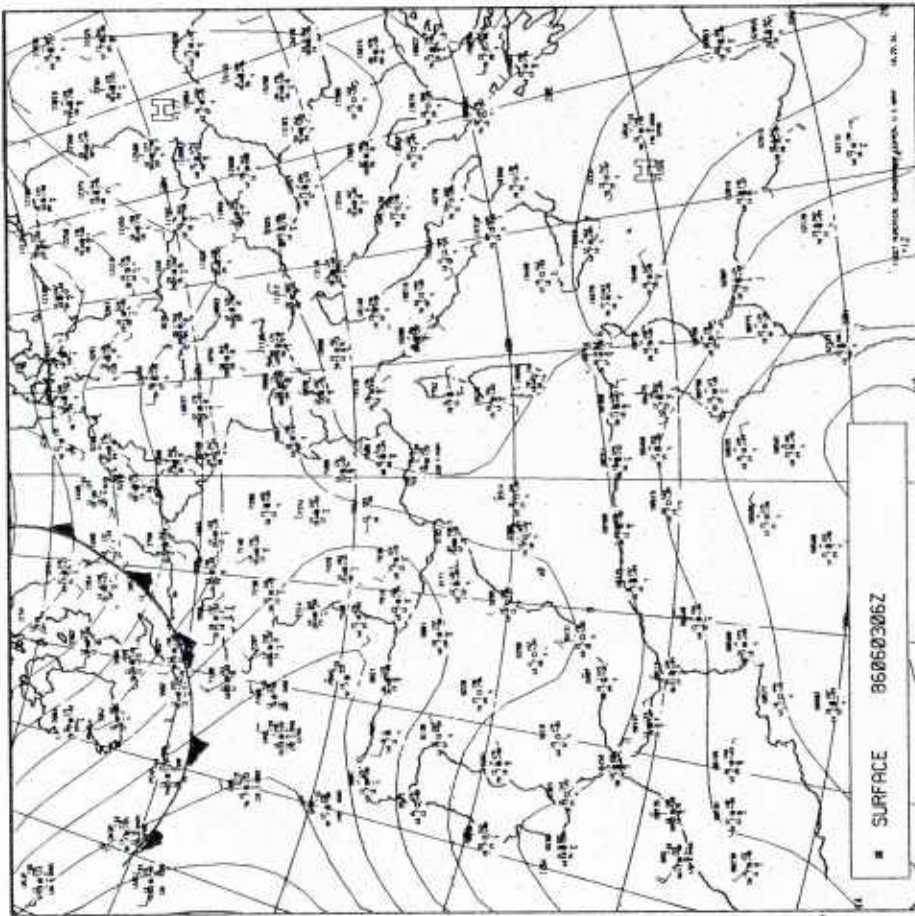
A flat high pressure area extends over the West Med experiment area. Visibility ranges are 15-40 km with no significant weather being reported except for light fog with 15 km visibility at Capo Della Frasca, Sardinia.



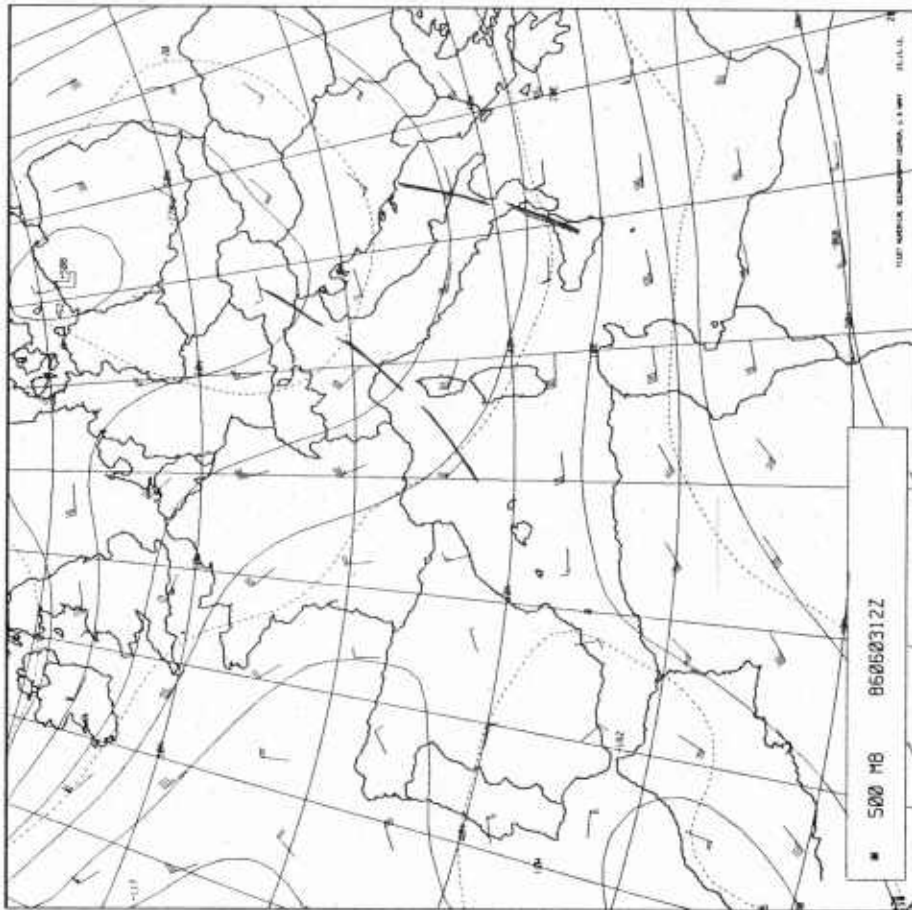
NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME



The high pressure cell over the West Med is ridging into the Gulf of Sirte. Ci is being reported along the Algerian coast. Visibility ranges include 9 km along the northeast coast of Spain, to 30 km at Almeria, Spain in the northern Alboran Sea. Cyclogenesis is occurring in the Gulf of Genoa in response to a 500 mb shortwave trough.



Fog is reported along the western coast of Italy and Sardinia plus the northern coast of Spain. Mostly Ci and thin AC are found along the Algerian coast. The low which formed in the Gulf of Genoa is drifting south into the Ligurian Sea.

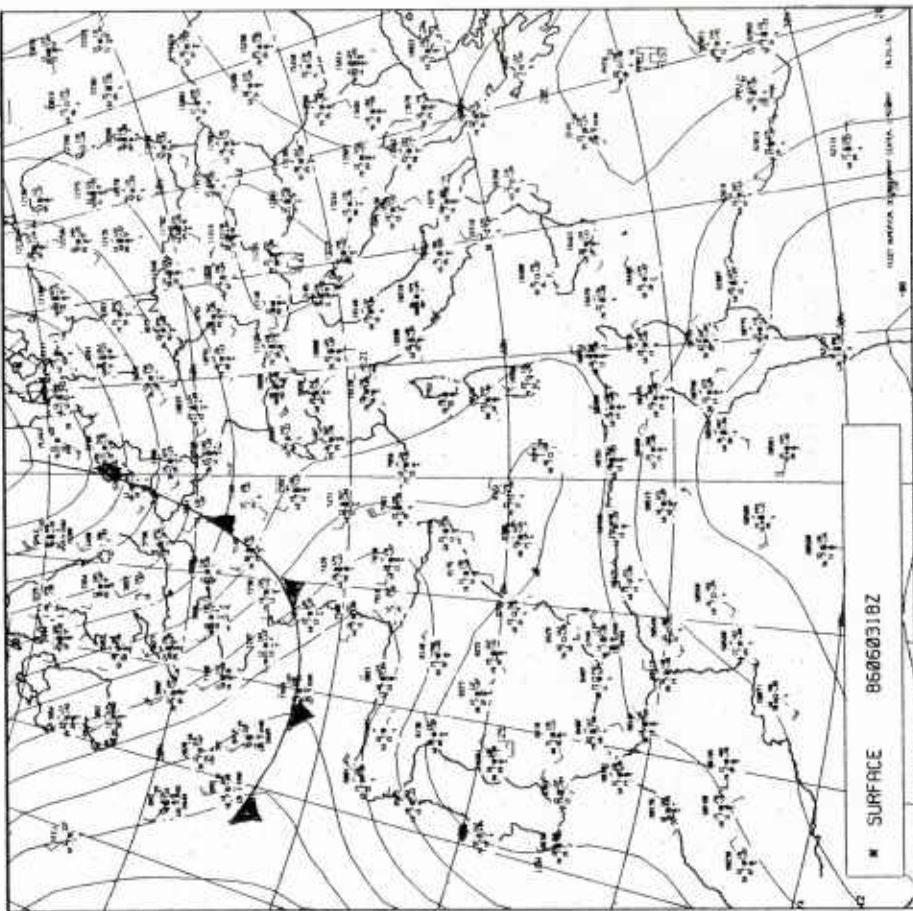
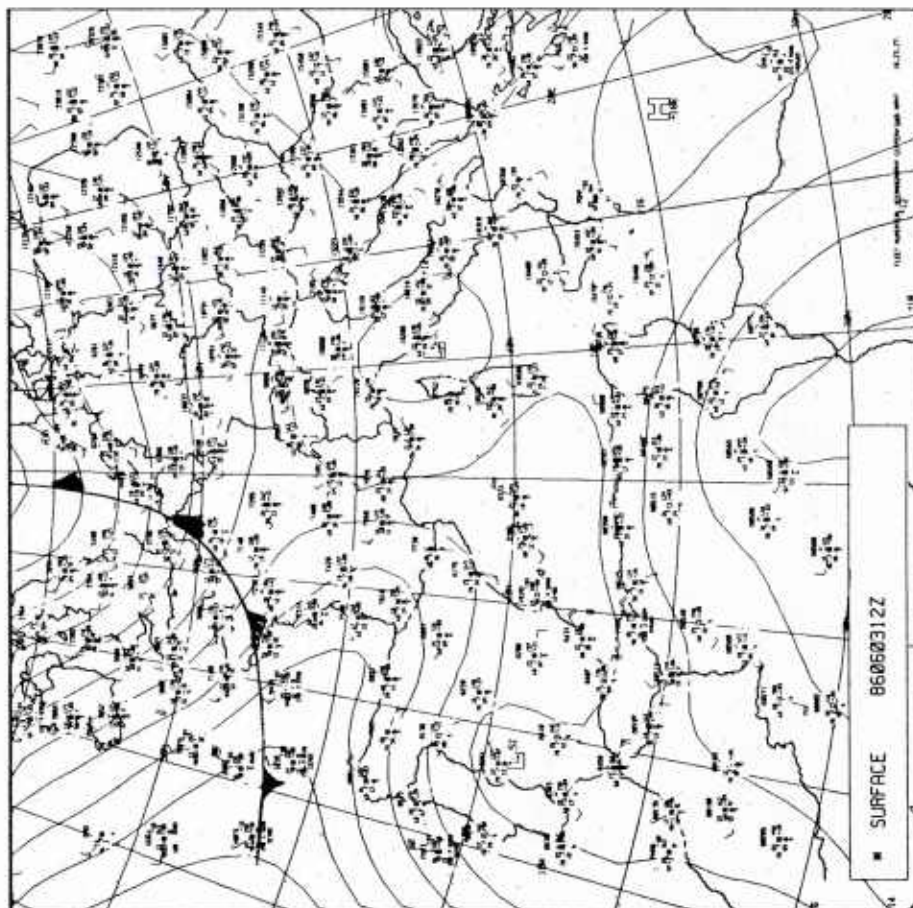


A 50 kt jet has developed over Sicily. West southwest flow dominates the southern half of the West Med. A short wave embedded in the northwesterly flow over Europe is moving over the Ligurian Sea.

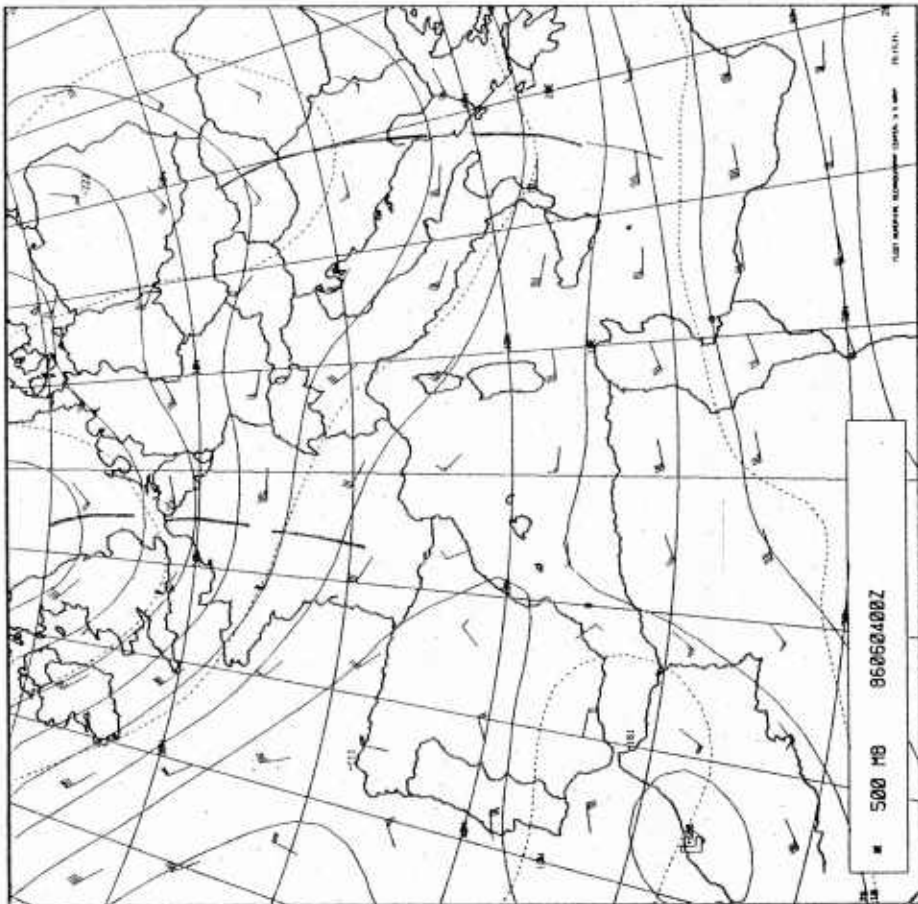


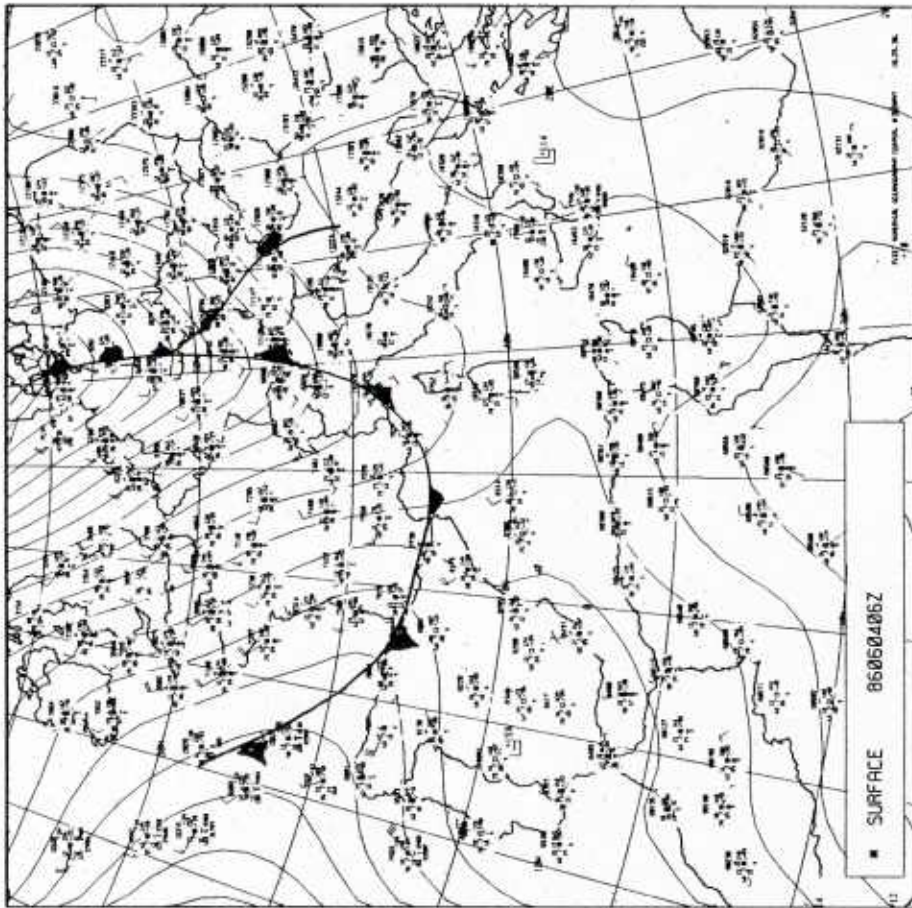
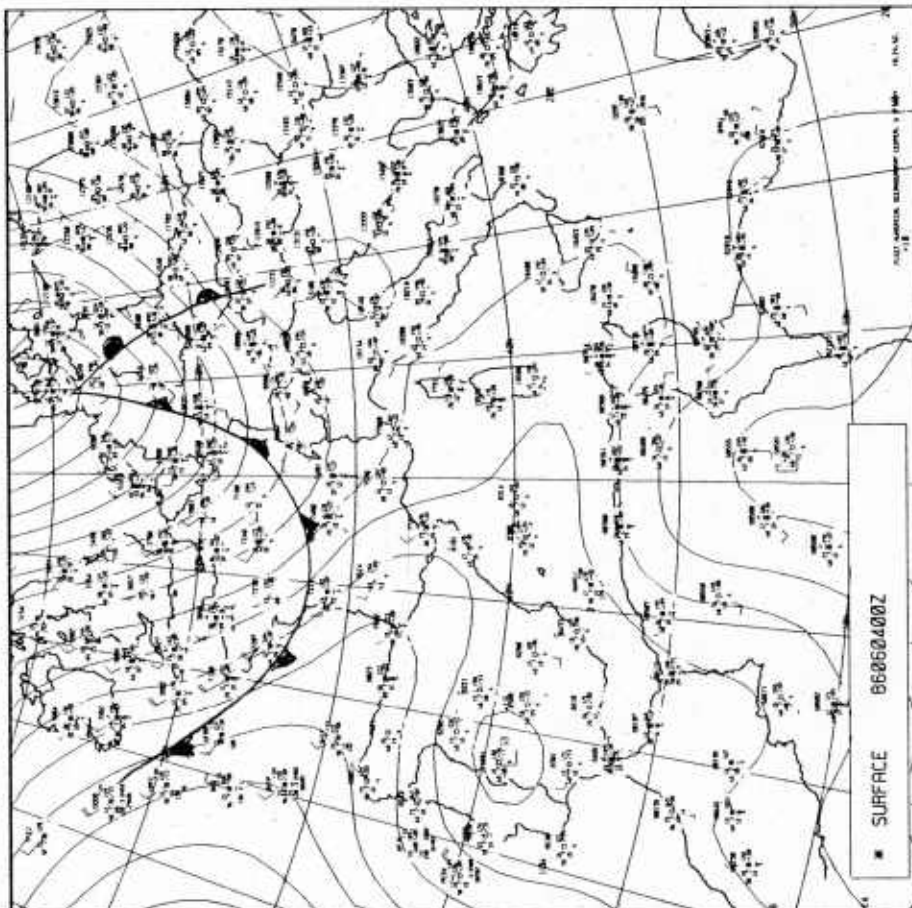
METEOSAT

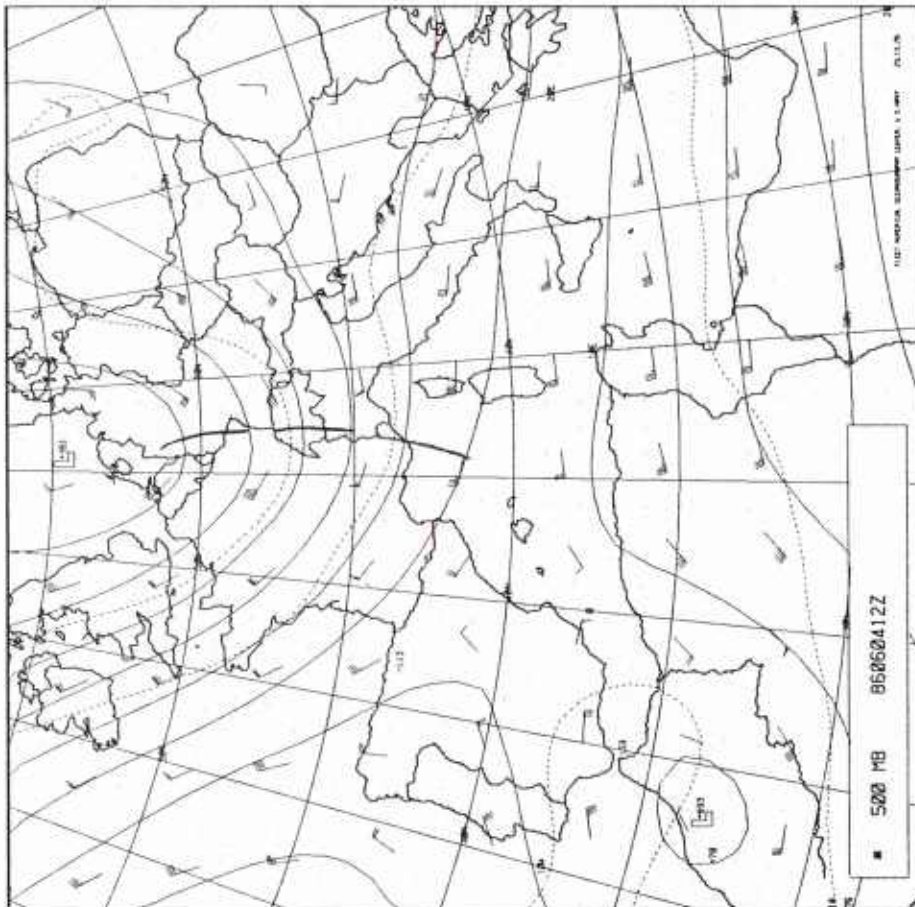
1986 MONTH 6 DAY 3 TIME 1555 GMT NORTH CH. VIS 2
NOMINAL SCRN/RAW DATA SLOT 32 COPYRIGHT - ESA -



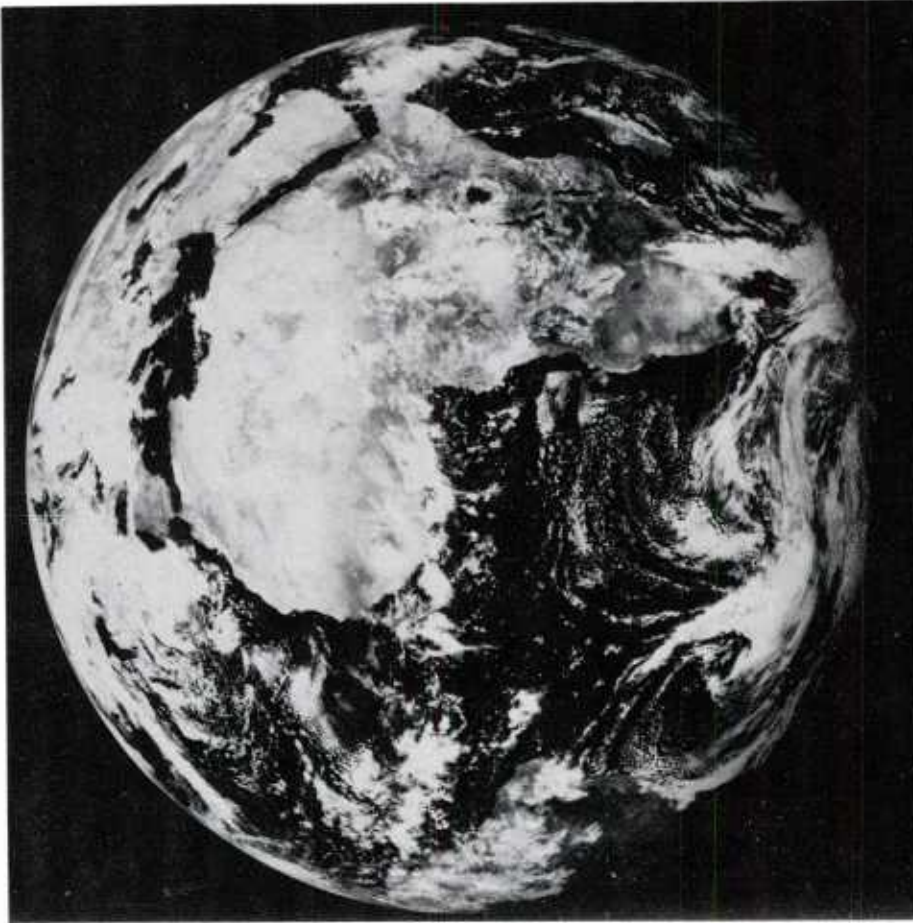
NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME





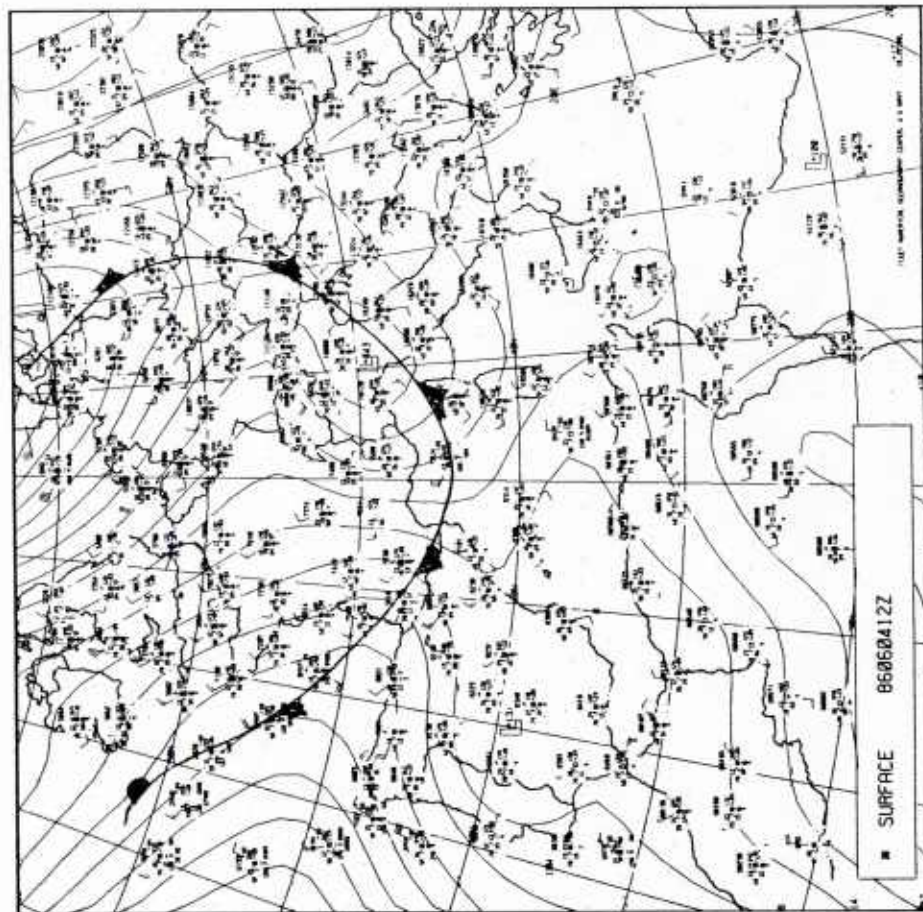


The cut off low over Morocco continues to drift eastward. The flow over the West Med is generally from the west with higher wind speeds found near southern France.

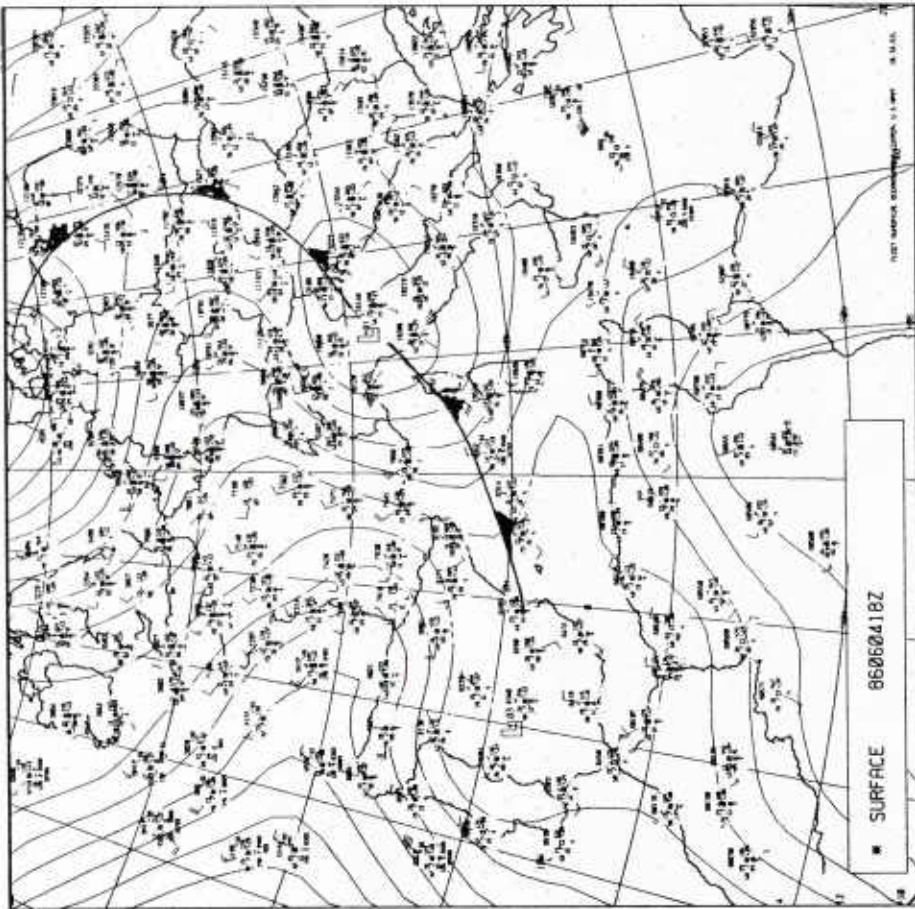


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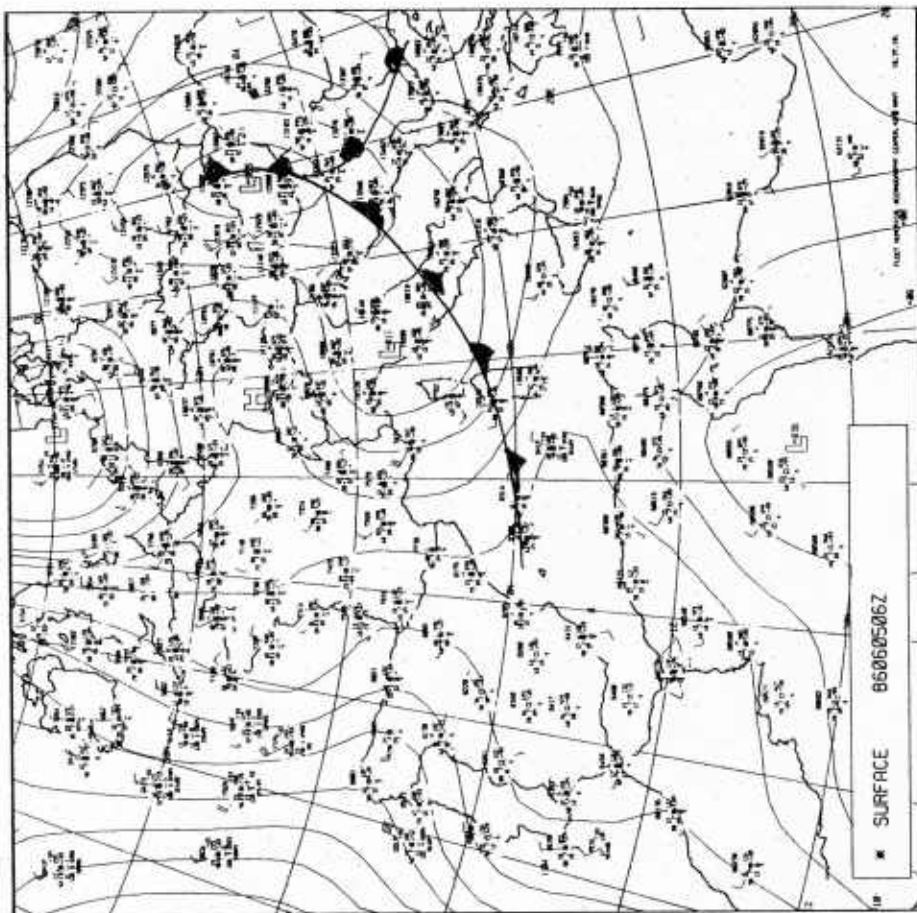
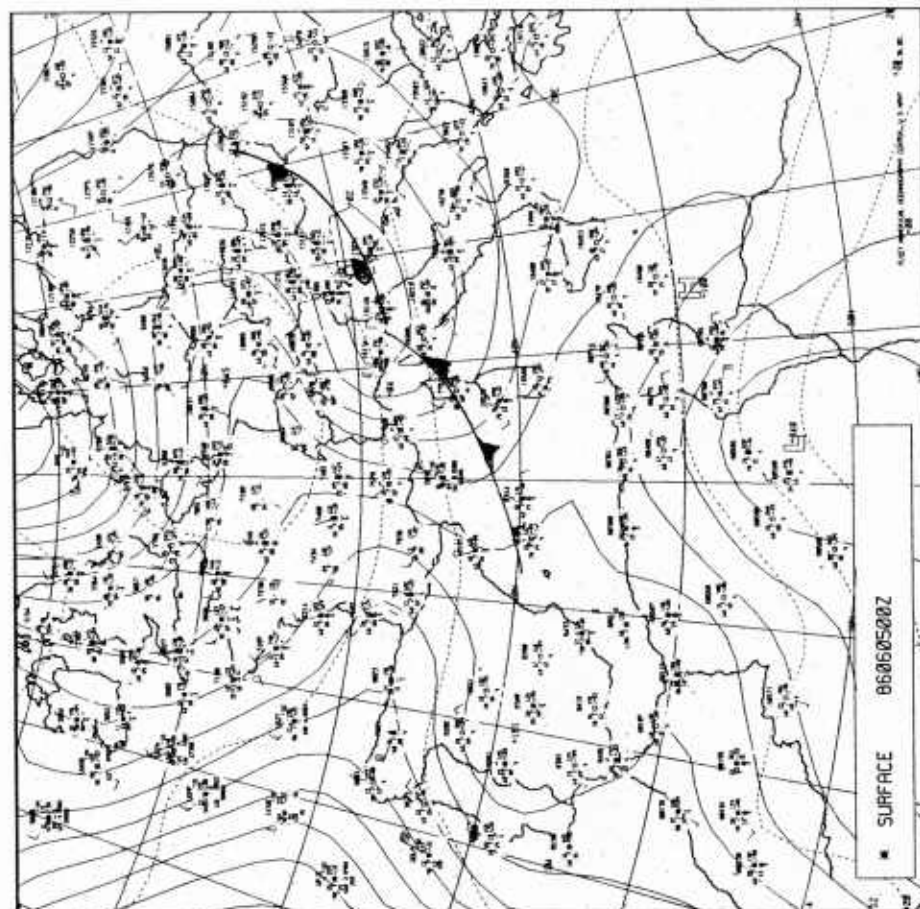
1986 MONTH 6 DAY 4 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAW DATA SLOT 24 COPYRIGHT - ESA -

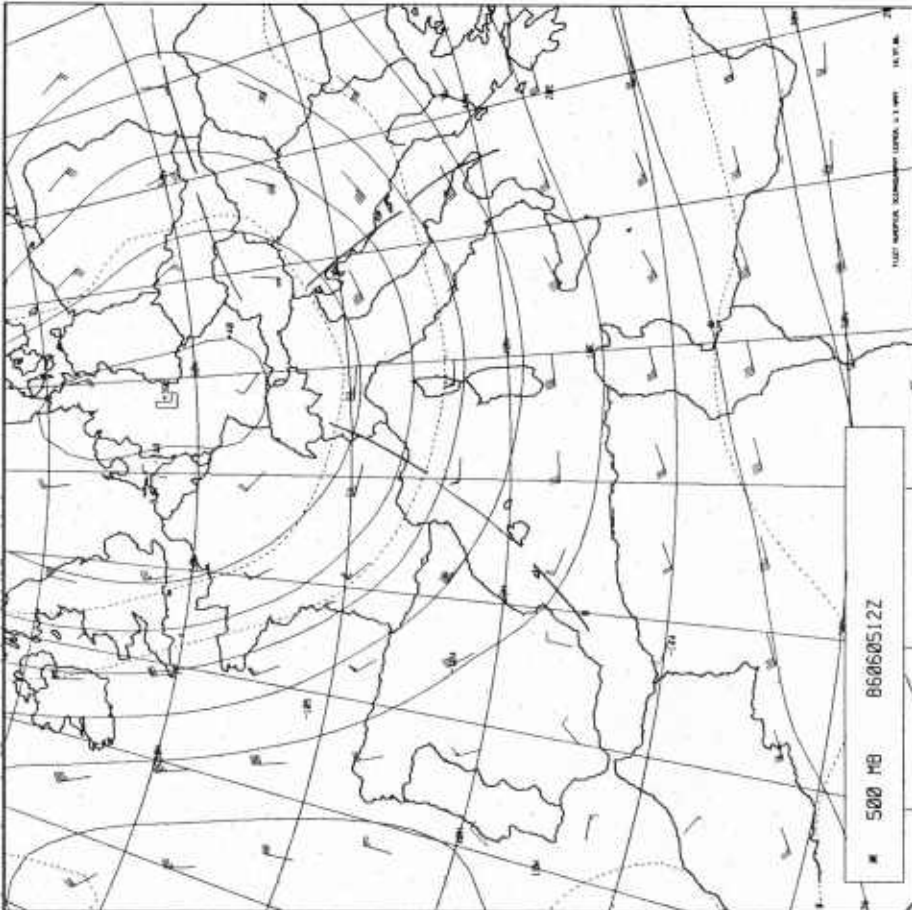


Cyclogenesis occurs in the Gulf of Genoa along a cold front extending from the North Sea. The northern West Med is experiencing a Mistral behind the front. Weak northerly winds and mostly cloudy skies of Cu and Sc are being reported elsewhere.



Northerly flow behind a weak cold front dominates the northern West Med. No precipitation is being reported along the front. The Mistral continues, as evidenced by 25 kt and 30 kt wind reports at the mouth of the Rhone Valley.



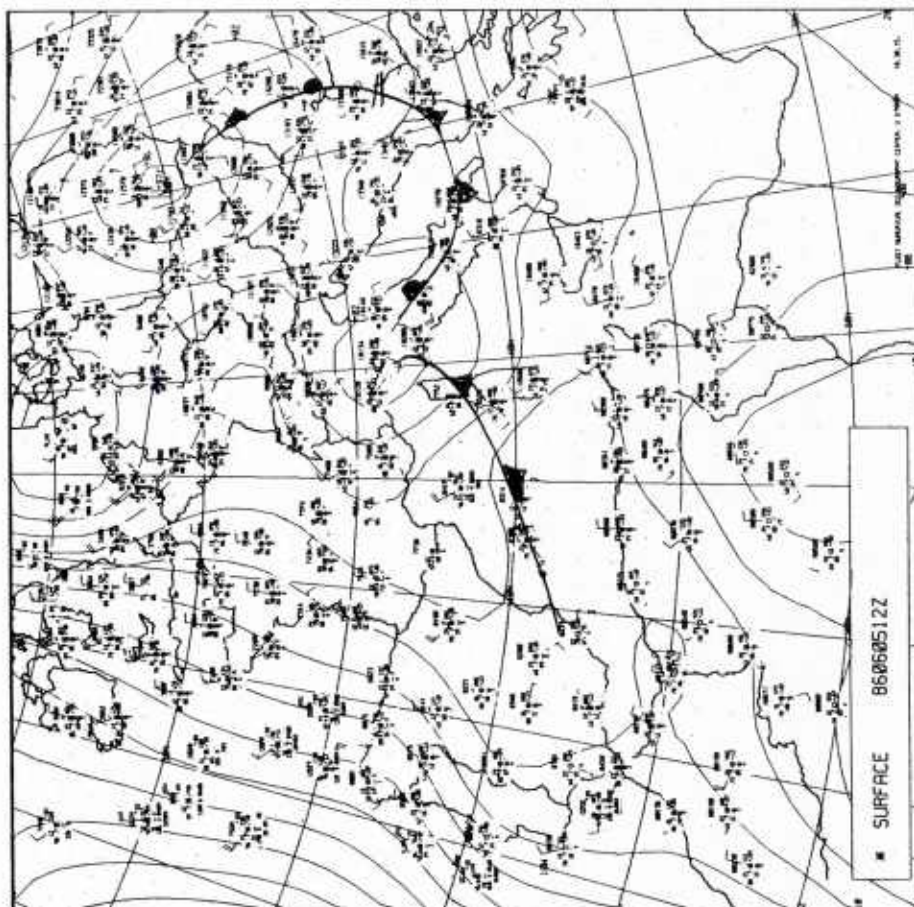


Westerly flow invades the West Med as a 50 kt jet digs south over western Europe. Short waves pinwheel around the low isohight centered over Germany.

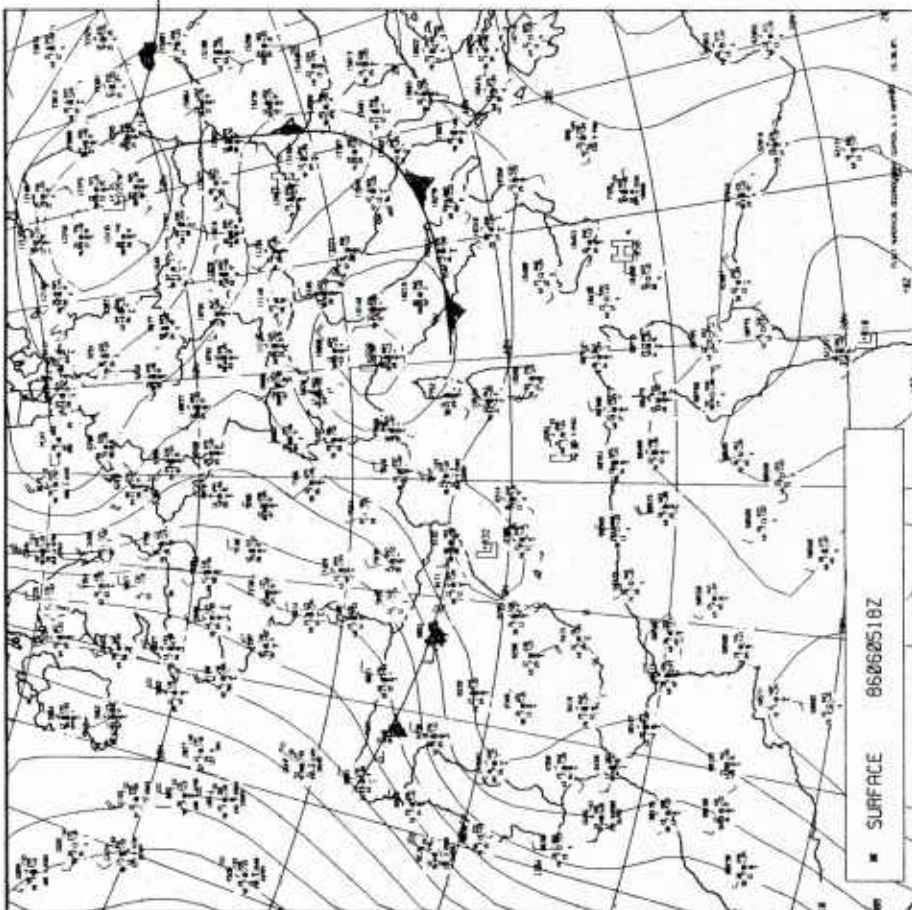


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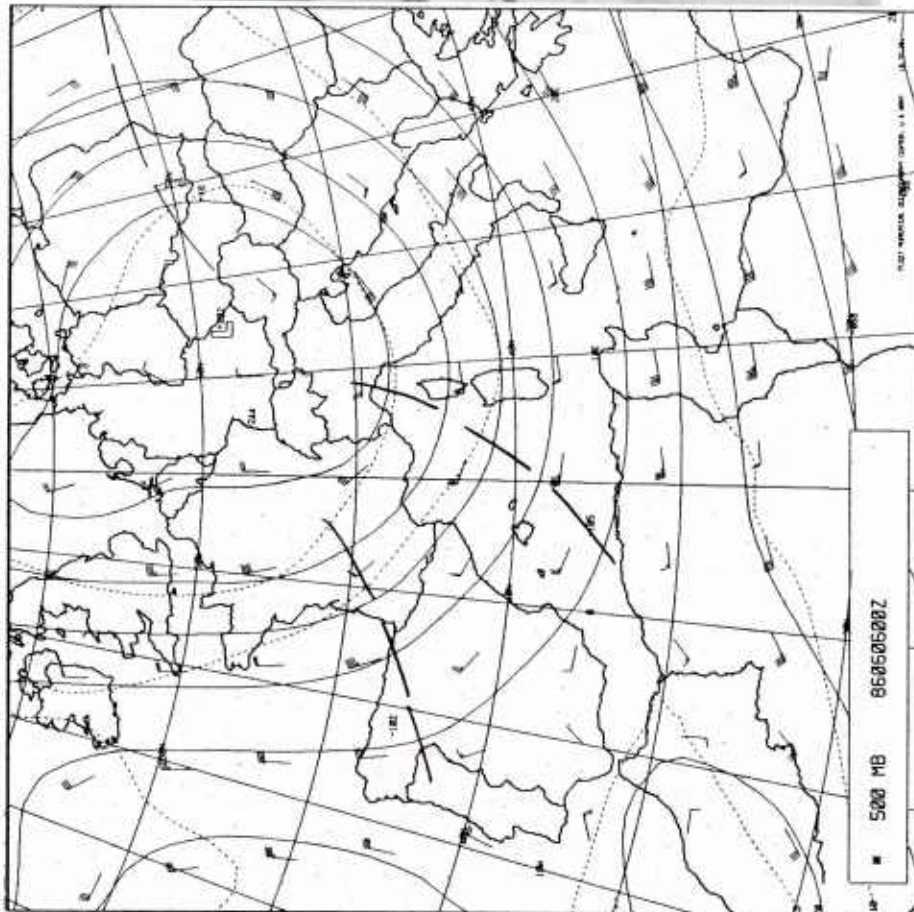
1986 MONTH 6 DAY 5 TIME 1155 GMT (NORTH) CH. VIS 2
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The northern West Med is experiencing cloudy skies behind a cold front. A ship at 42N 04.8E is reporting drizzle. Northerly flow is evident from the Balearic Islands to the Tyrrhenian Sea.



Weak cyclogenesis occurs west of the Balearic Islands in response to upper level shortwaves pinwheeling around the upper low isohelght over Germany. The low over Genoa deepens. A rain shield is seen extending from the northern Adriatic Sea to the Gulf of Lyons.

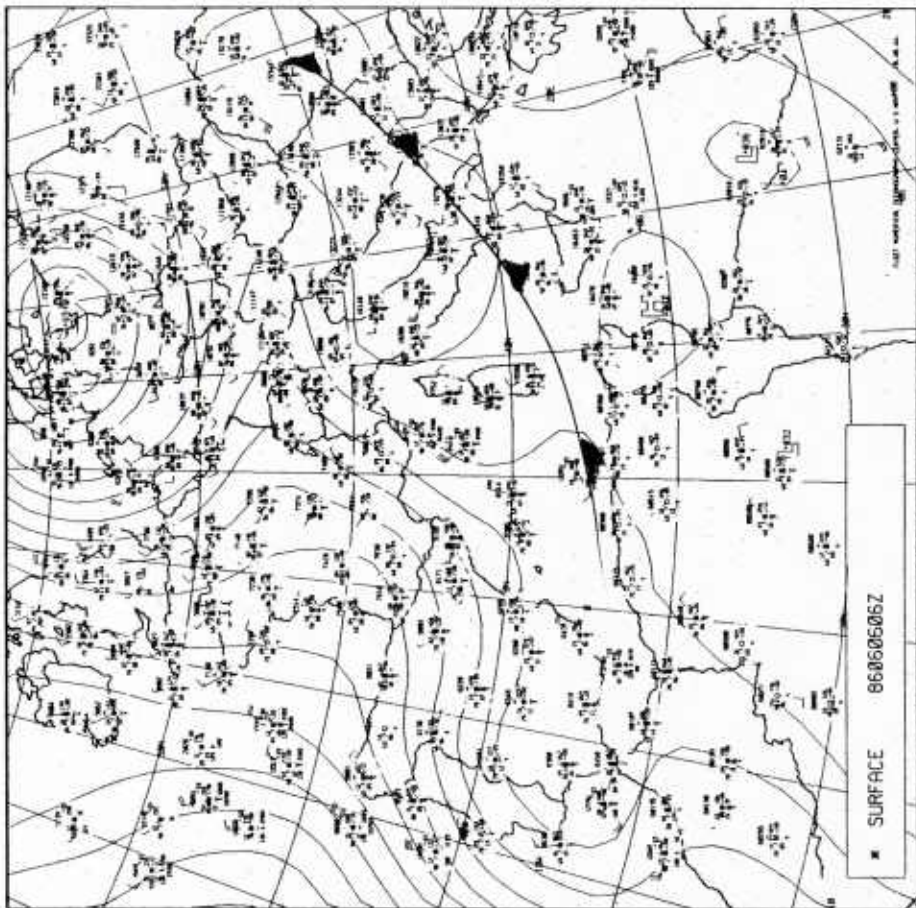
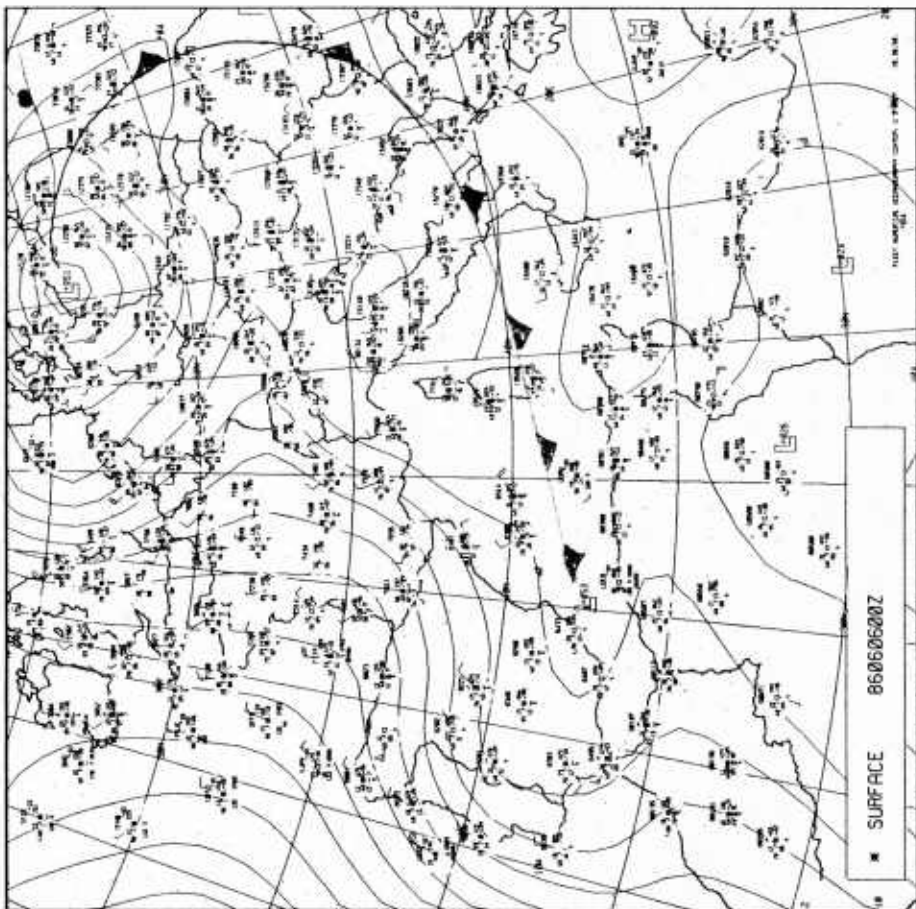


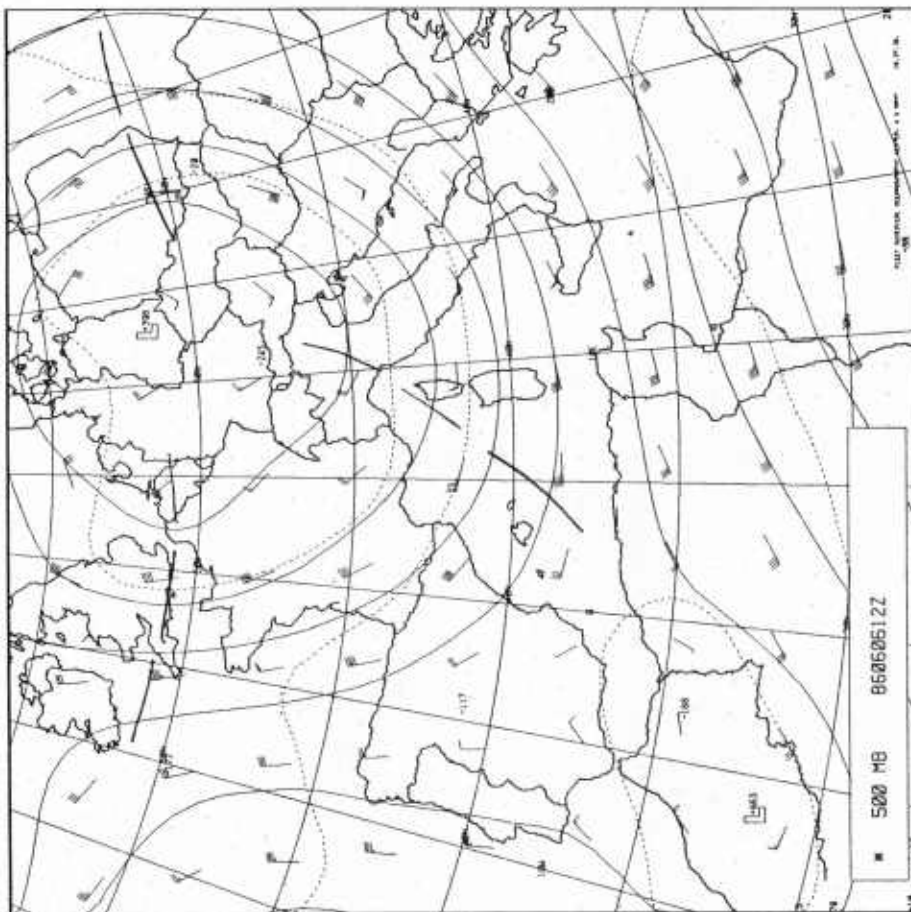
500 MB 860505Z

The entire West Med area is under the influence of northwesterly winds. A 50 kt jet is evident north of the Balearic Islands extending to Sardinia. A cut off low forms over the Atlantic coast of Morocco.



06 JUN 86 1400 GMT VIS



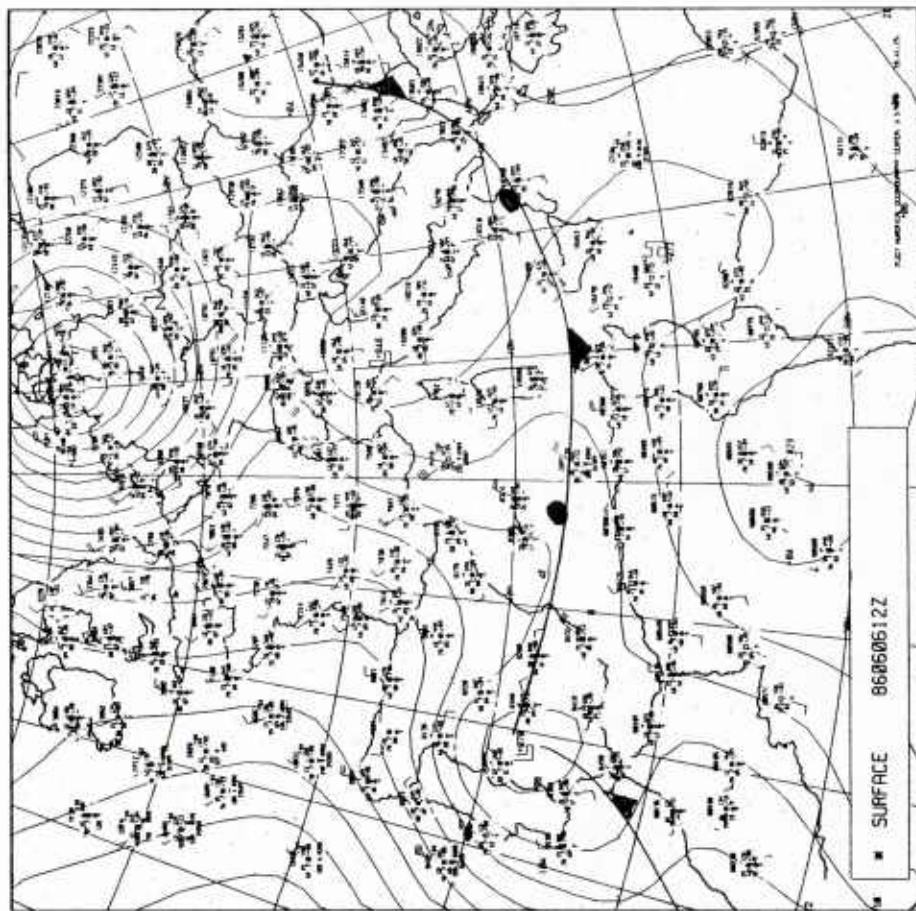


Northwesterly winds continue through the West Med. A short wave extends from a low over Europe to North Africa. The low over Morocco opened and is drifting east.

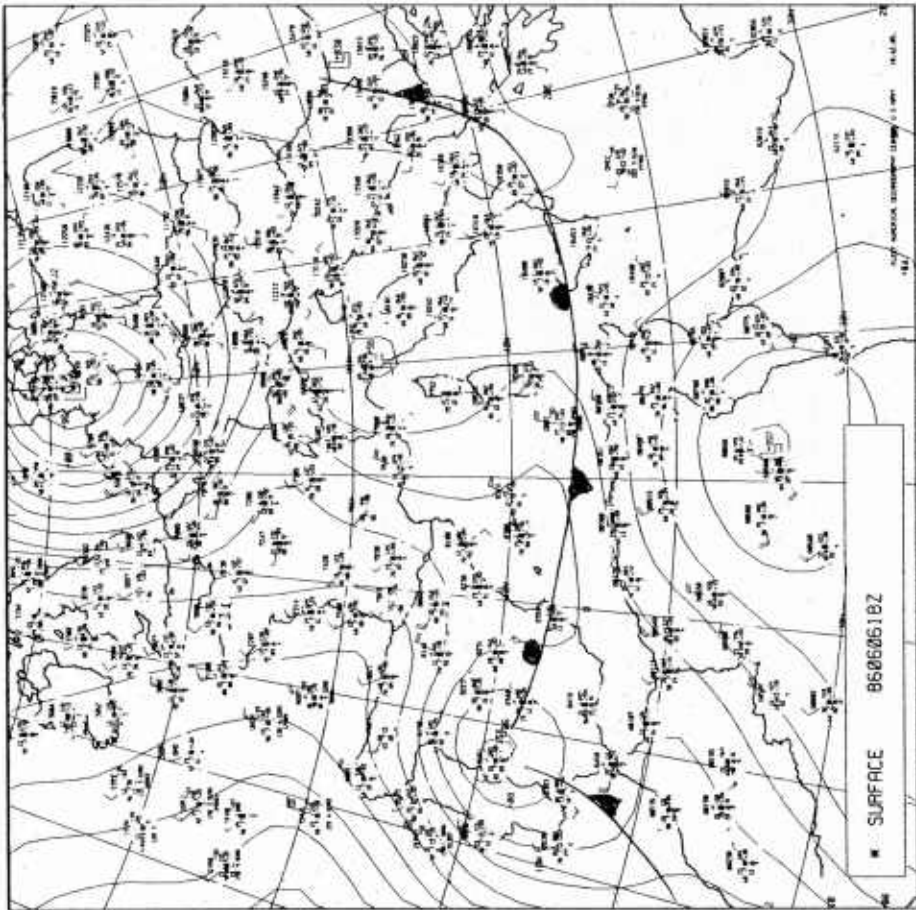


METEOSAT

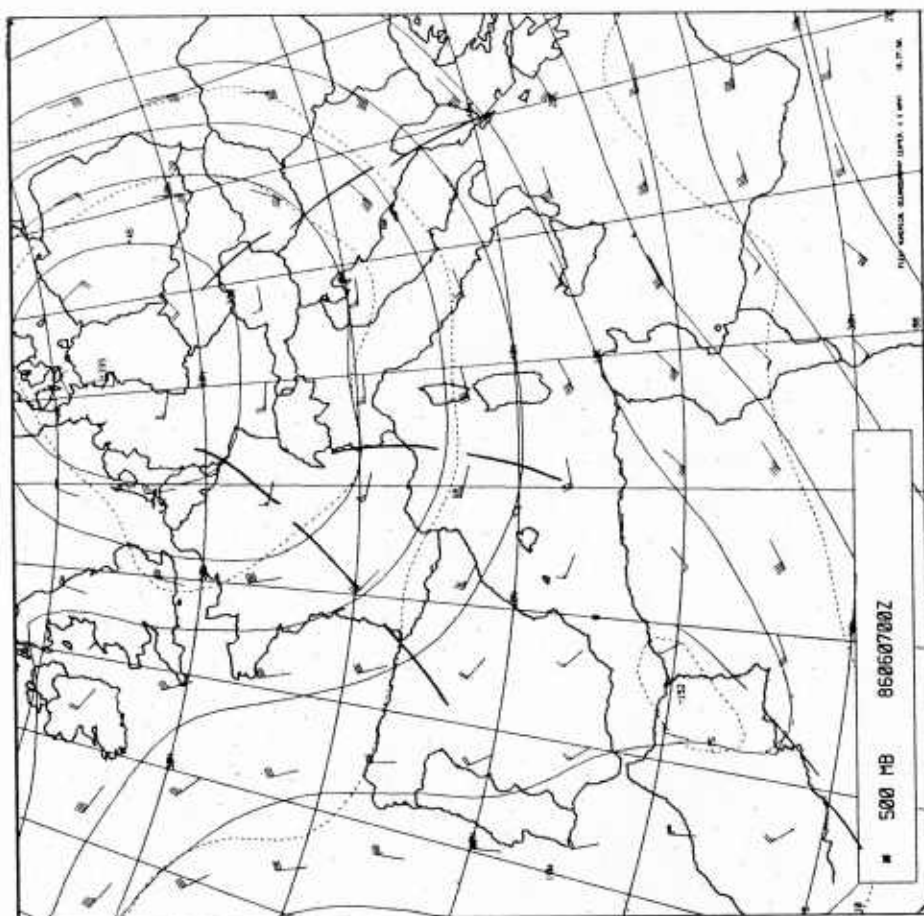
1986 MONTH 6 DAY 6 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCRN-PAN DATA SLOT 24 COPYRIGHT - ESA -



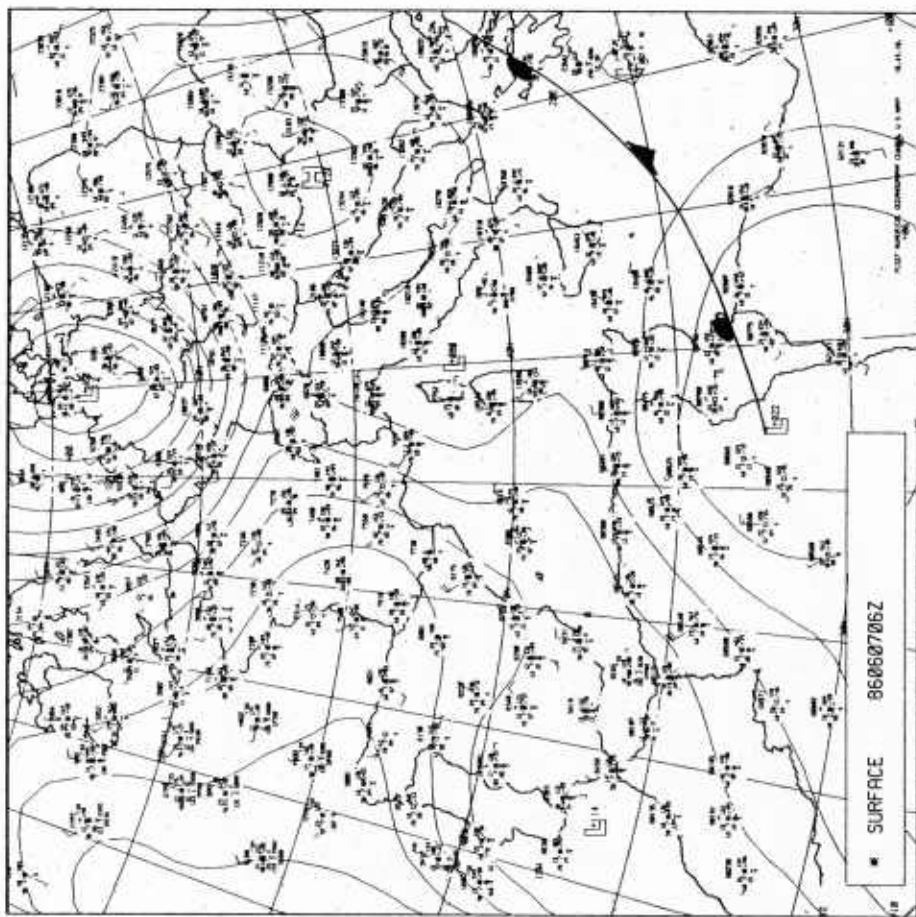
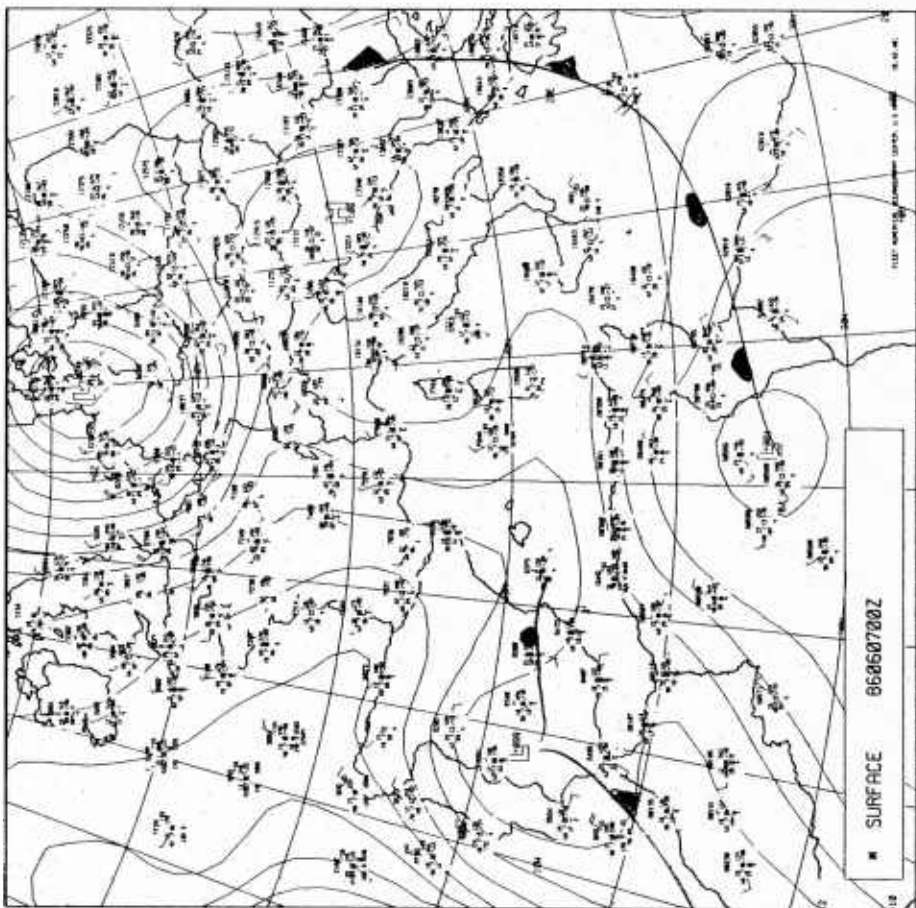
Cyclogenesis is occurring over southern Spain. A stationary front extends through the West Med. Northeast winds prevail in the area.

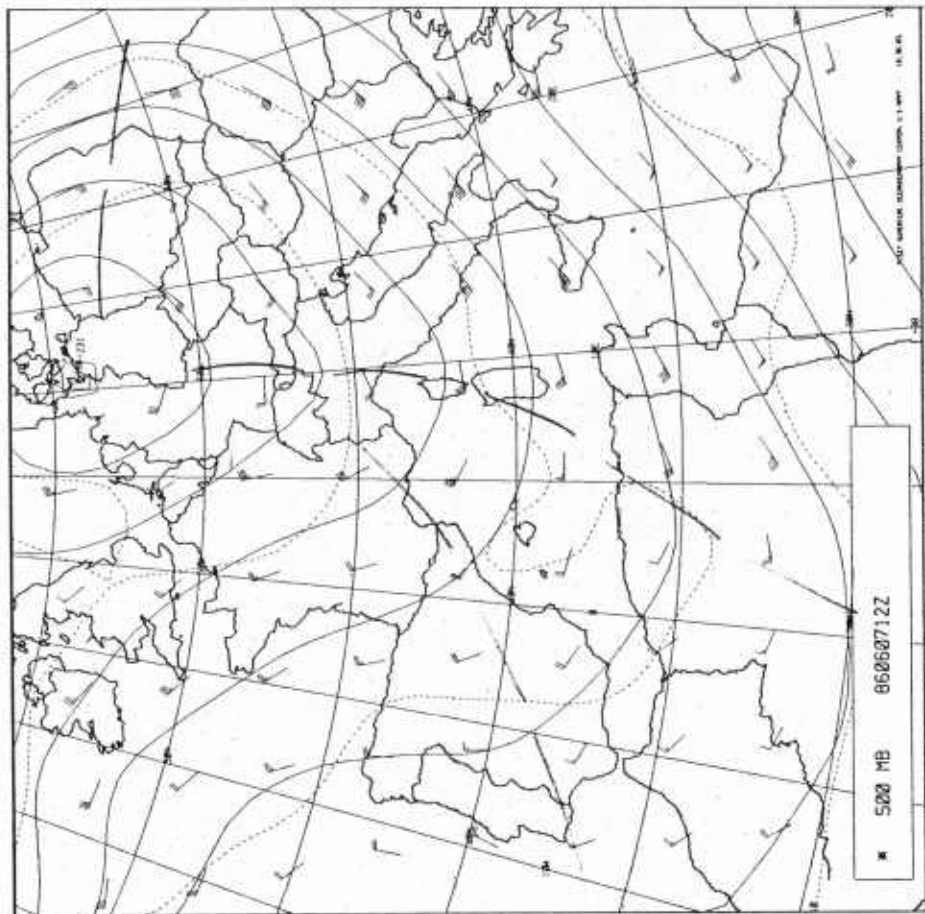


The stationary front through the West Med is weakening (see 06060614Z visual satellite picture). Alboran Sea coastal stations are reporting partly cloudy to cloudy skies with past rain shower activity. Cyclogenesis is occurring in Algeria.



NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME



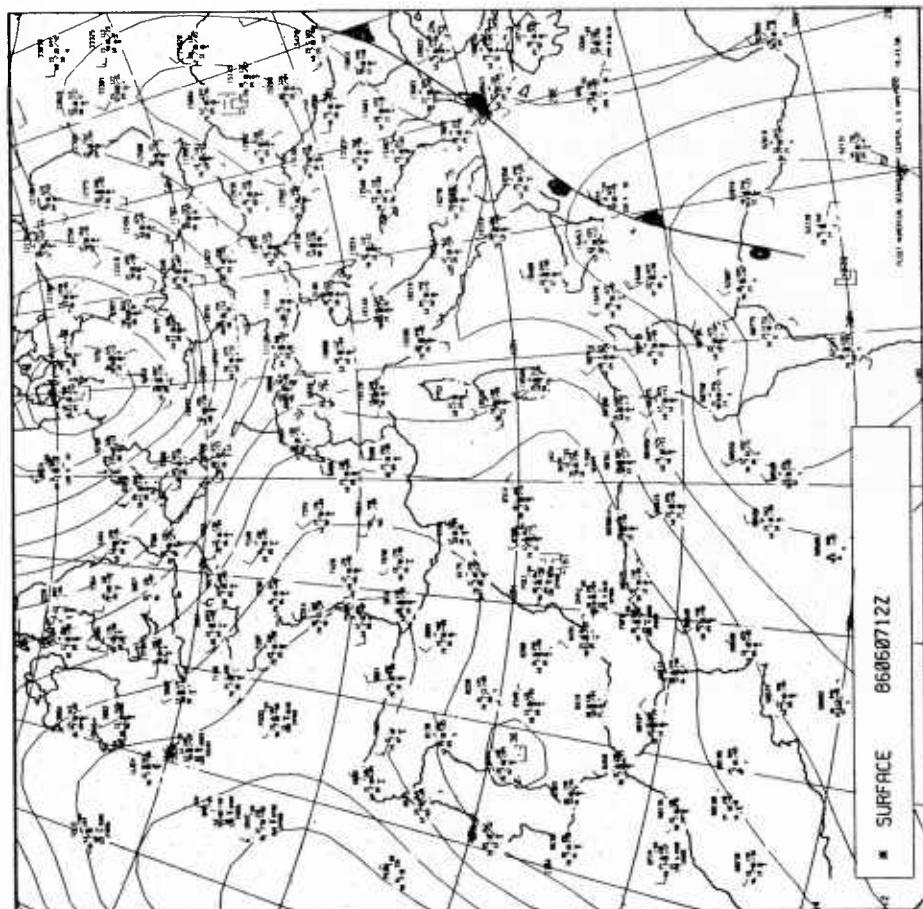


Troughs continue to pinwheel around the low isohight over northern Europe. A 50 kt jet extends from central Algeria to the Ionian Sea.

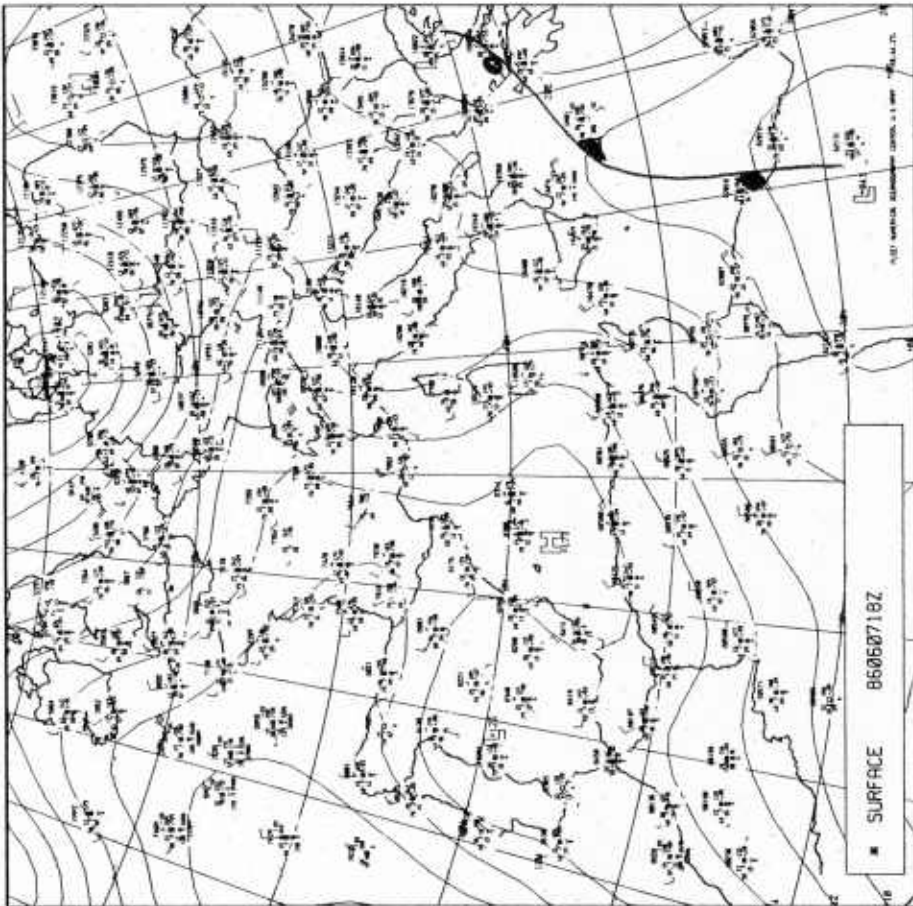


METEOSAT

1966 MONTH 6 DAY 7 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCRI-PH4 DATA SLOT 24 COPYRIGHT - ESA -

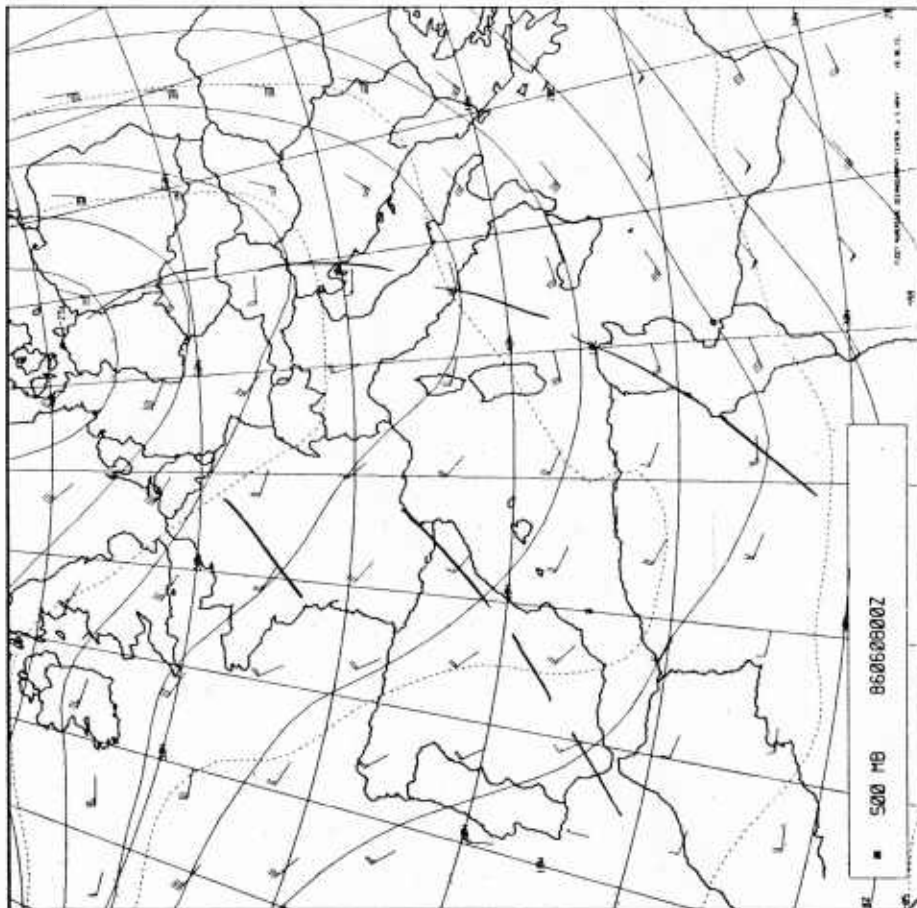


Light northerly winds exist through the West Med. Most coastal stations are reporting cloudy skies with no precipitation. A small high pressure cell has developed over the Balearic Islands.

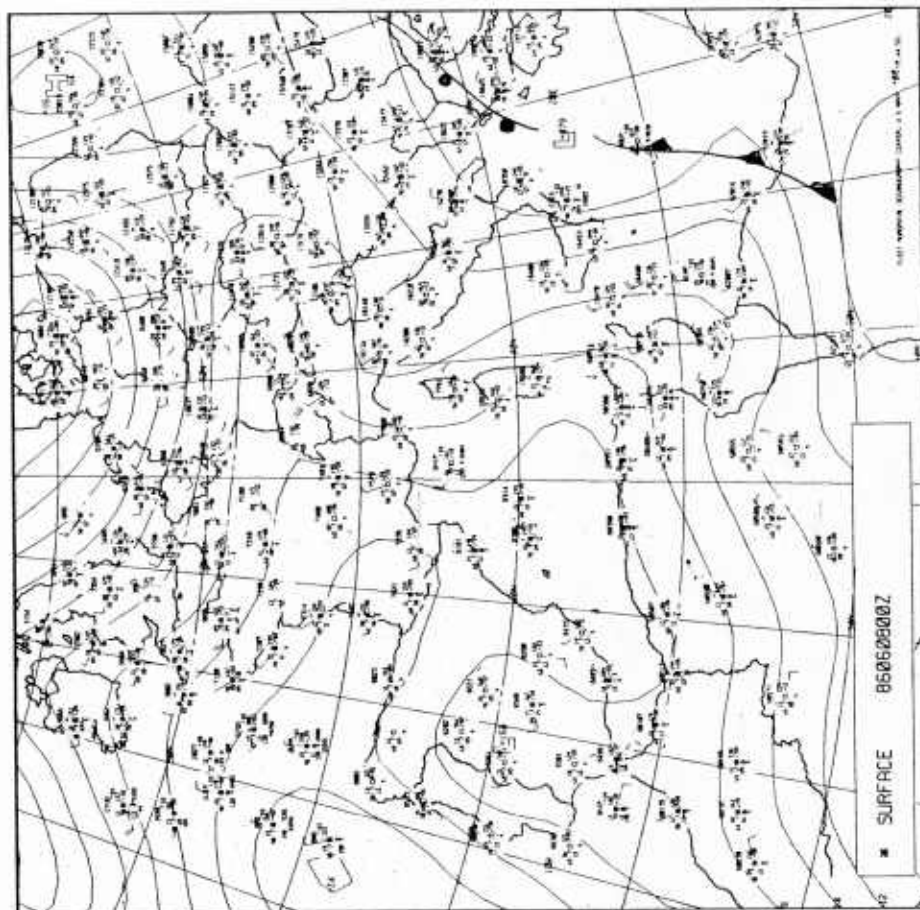


The small high over the Balearic Islands builds by 2 mbs. Northerly flow dominates the rest of the western Med. North Africa stations report obscured skies but no obstructions to vision.

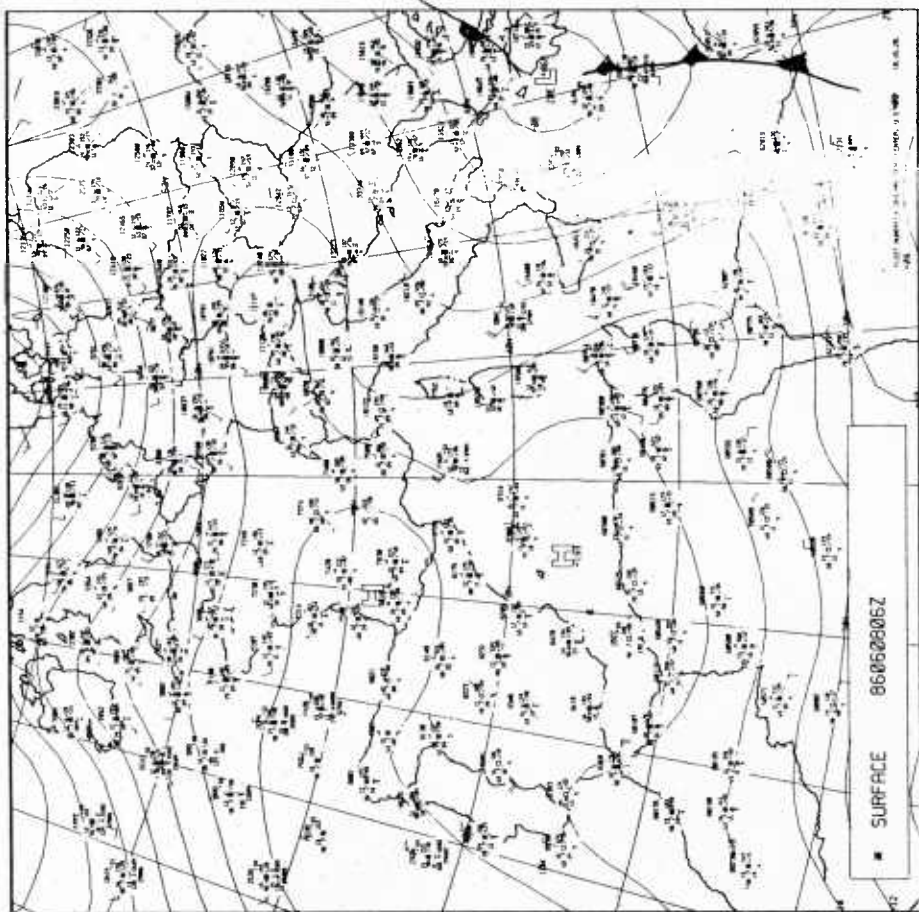
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FOR THIS DATE AND TIME



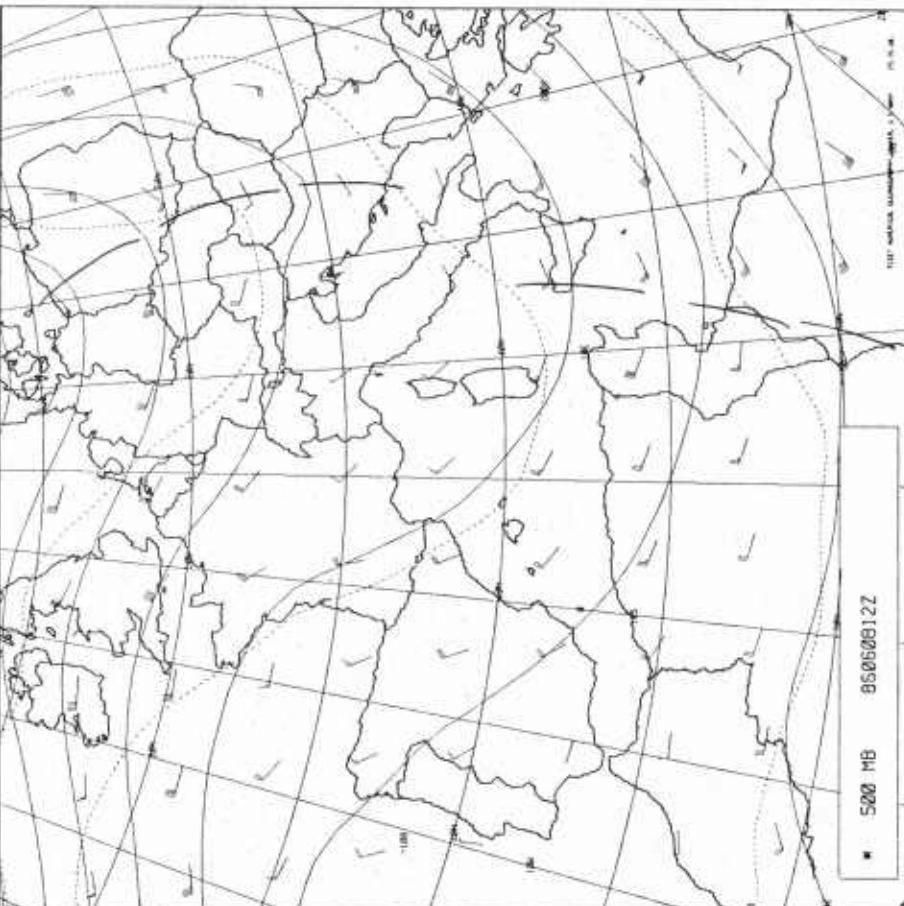
Numerous short waves continue to revolve about the low isobars anchored over Denmark. The longest wave extends the into Algeria. Winds have decreased in speed but continue from the northwest. A 50 kt jet extends from Algeria to Greece.



A small high dominates the eastern coast of Spain causing northerly flow throughout the West Med. Clear skies are reported in the northern sector of the West Med while North Africa



The high near the Balearic Islands continues to build. Ridging from this high is seen extending along the north African coast to the Gulf of Sirte. Clear skies are reported along the Algerian coast while the Spanish coastal stations report partly cloudy skies of Fs and Cs.

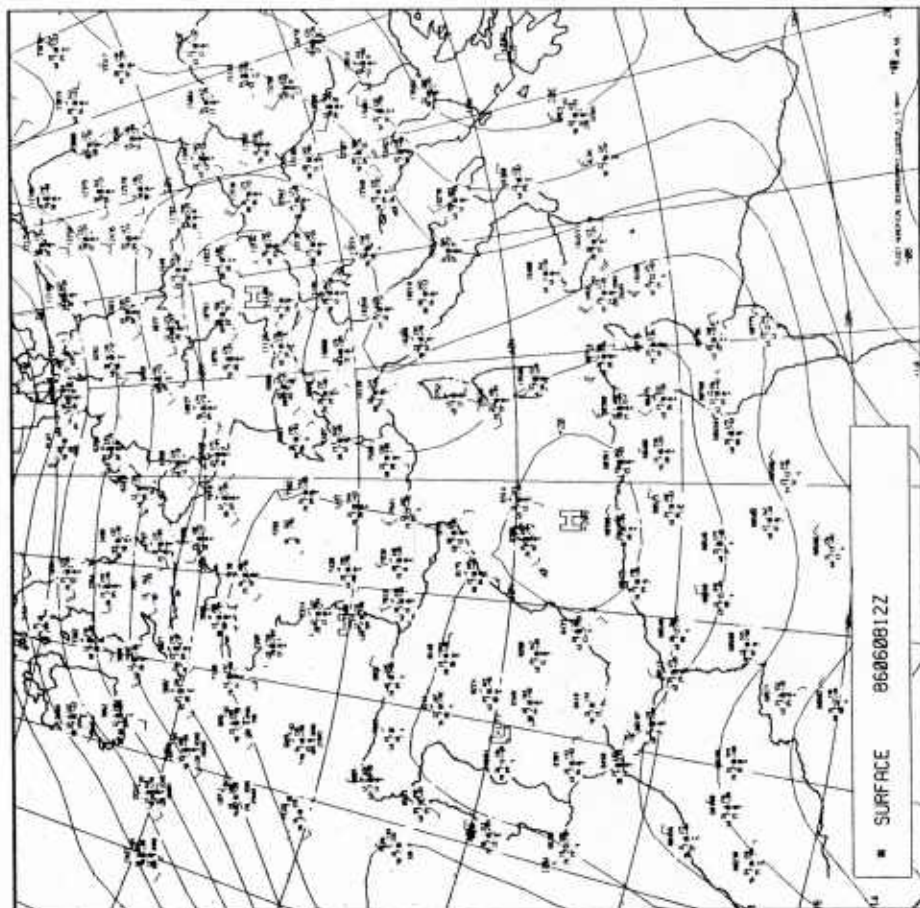


Short waves revolving about the low over Norway are moving into eastern Europe and the East Med. A ridge is moving over the Iberian peninsula.

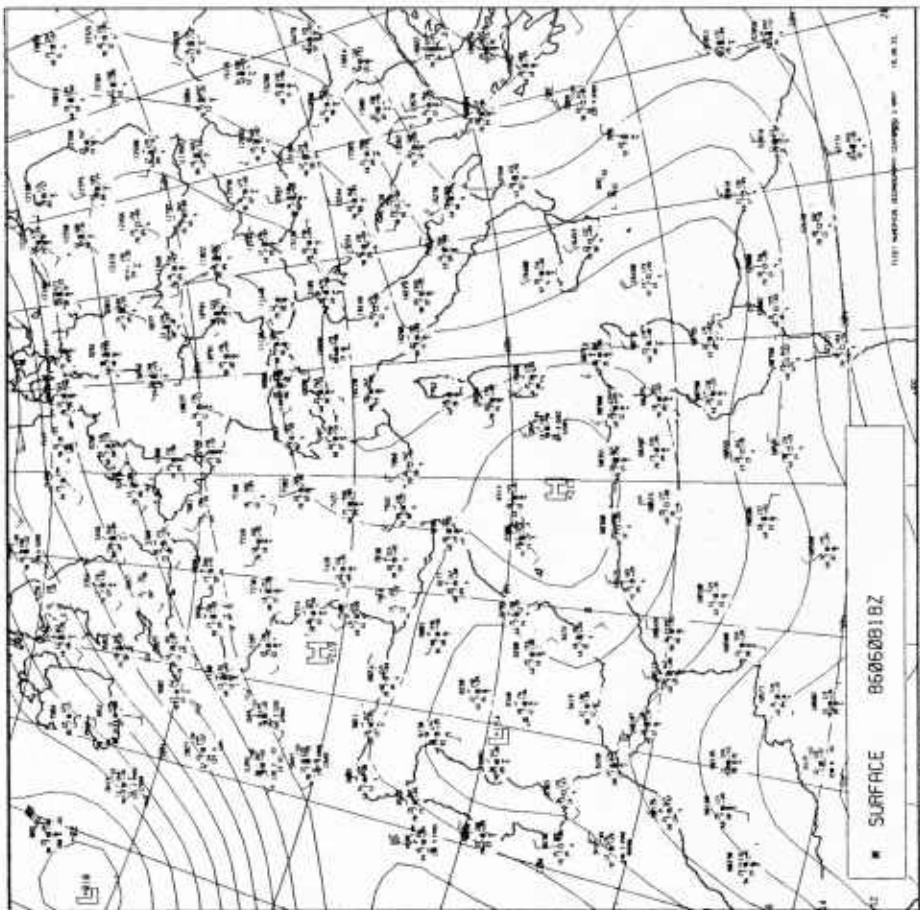


METEOSAT

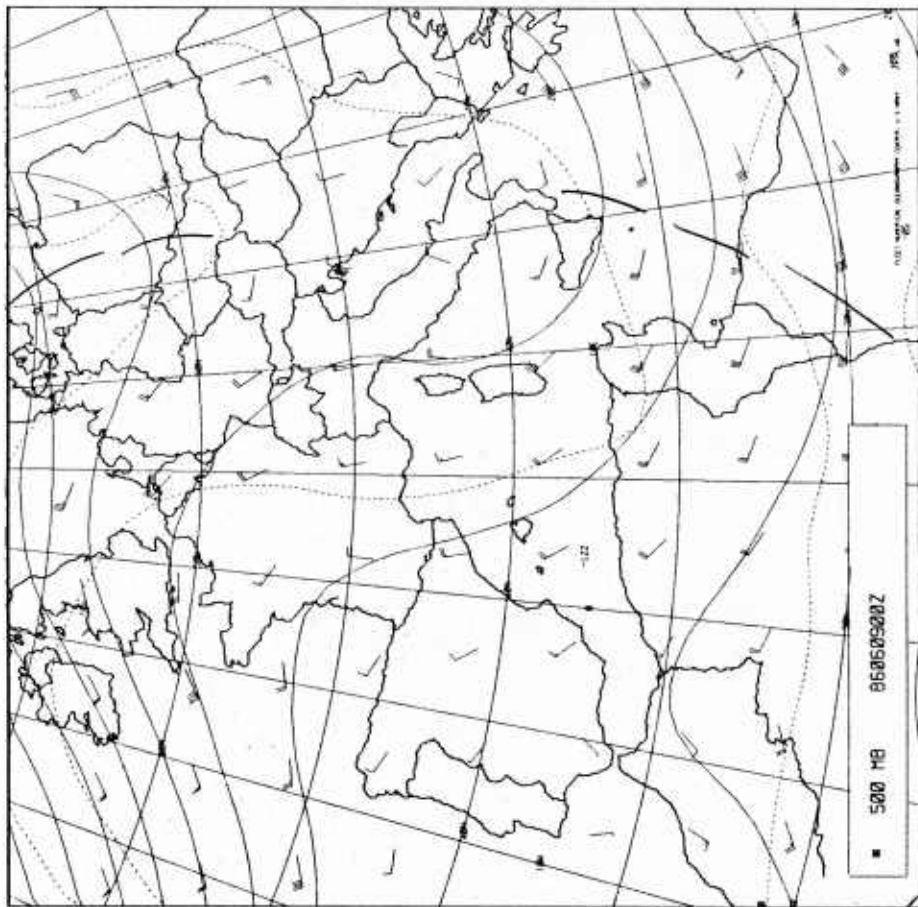
1986 MONTH 6 DAY 8 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAW DATA SLOT 24 COPYRIGHT - ESA -



The building high in the West Med is the dominate weather feature. The high is bringing northwest winds over the Tyrrhenian Sea and light and variable winds in the Alboran Sea. Most West Med stations are reporting thin Ac and Ci but no obstructions to vision.



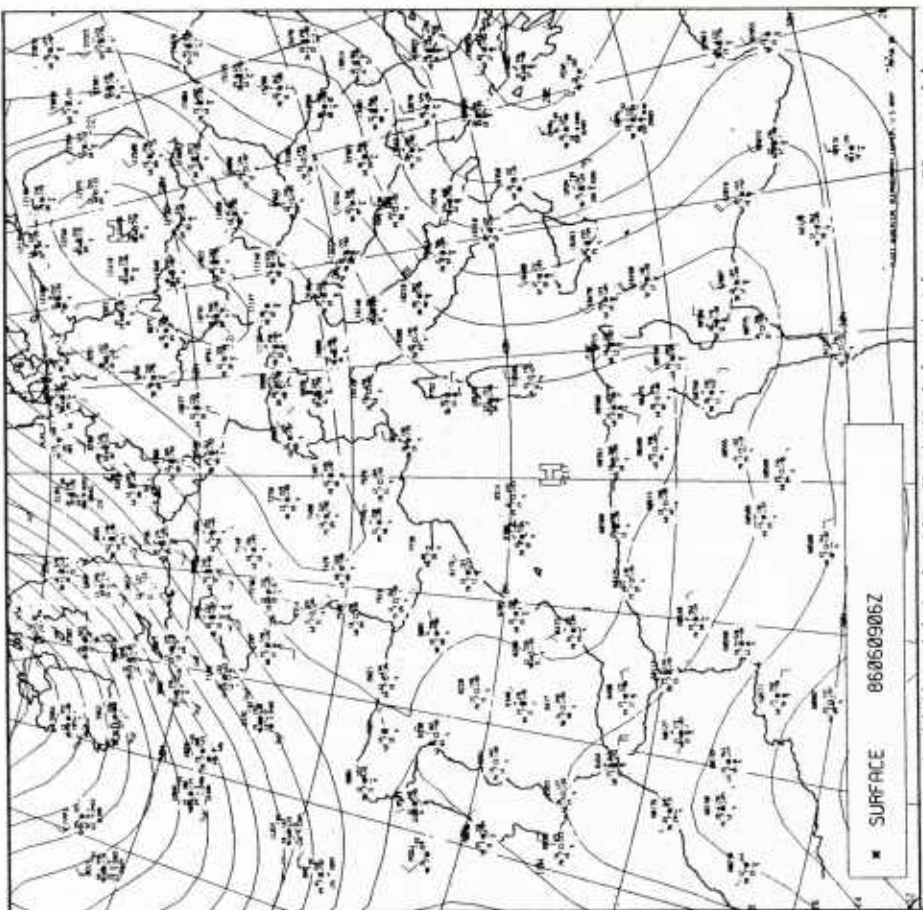
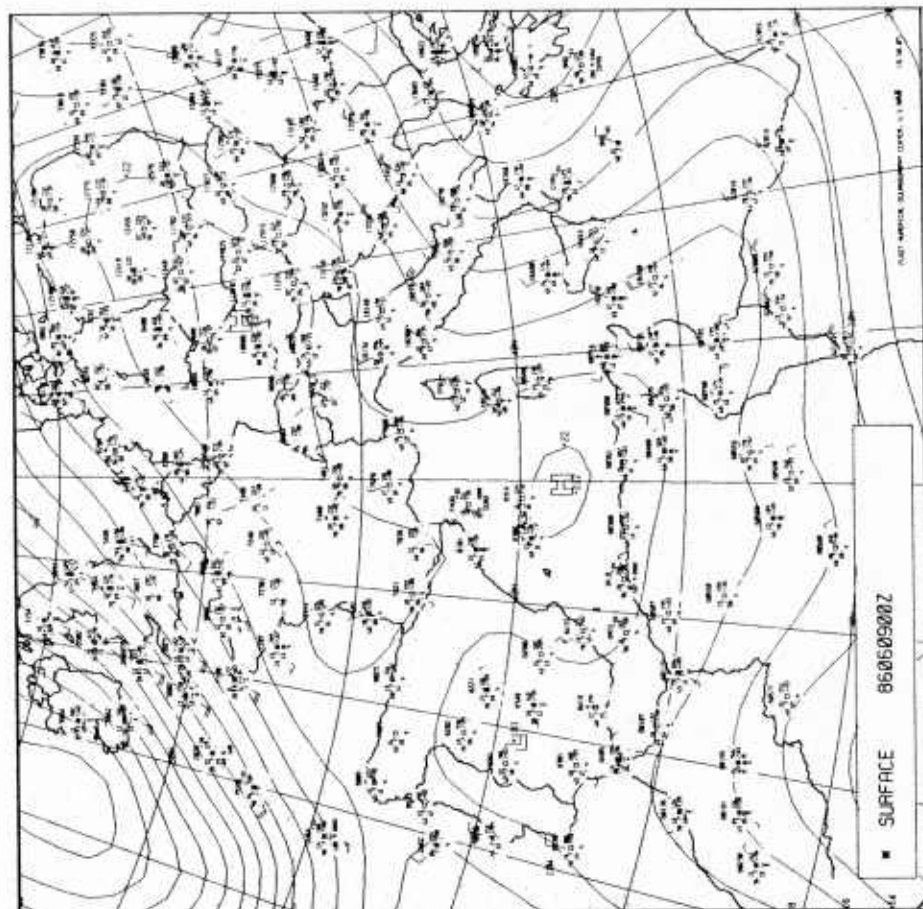
The weather in the West Med is under the influence of the building high near 39N 004E. No restrictions in visibility or sensible weather are being reported in the area of interest.

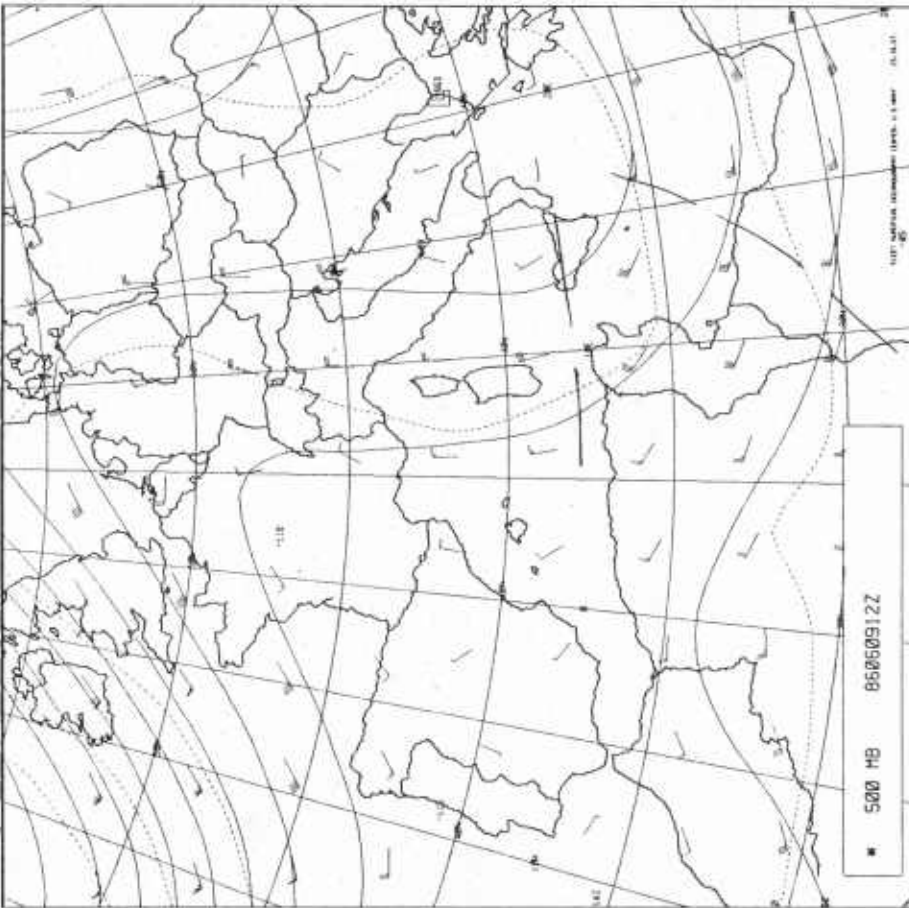


Upper level cyclogenesis is occurring over the Adriatic as a short wave digs south. The ridge over the Iberian peninsula builds into western Europe.

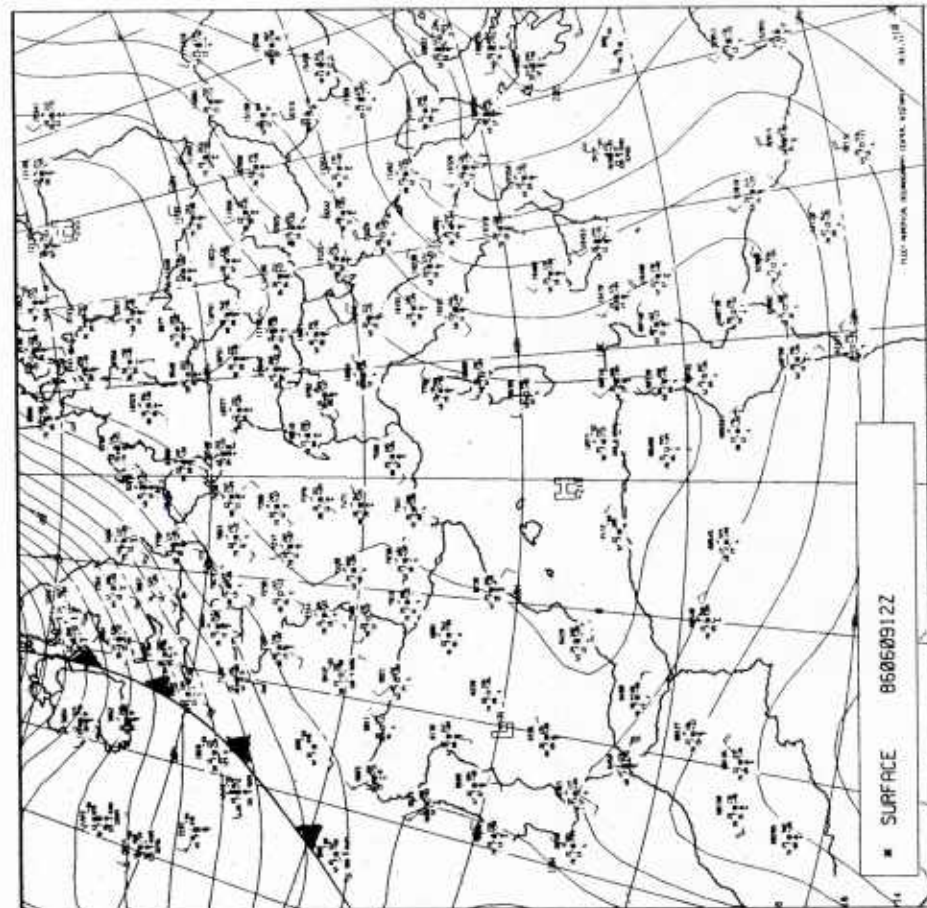


09 JUN 86 0800 GMT VIS

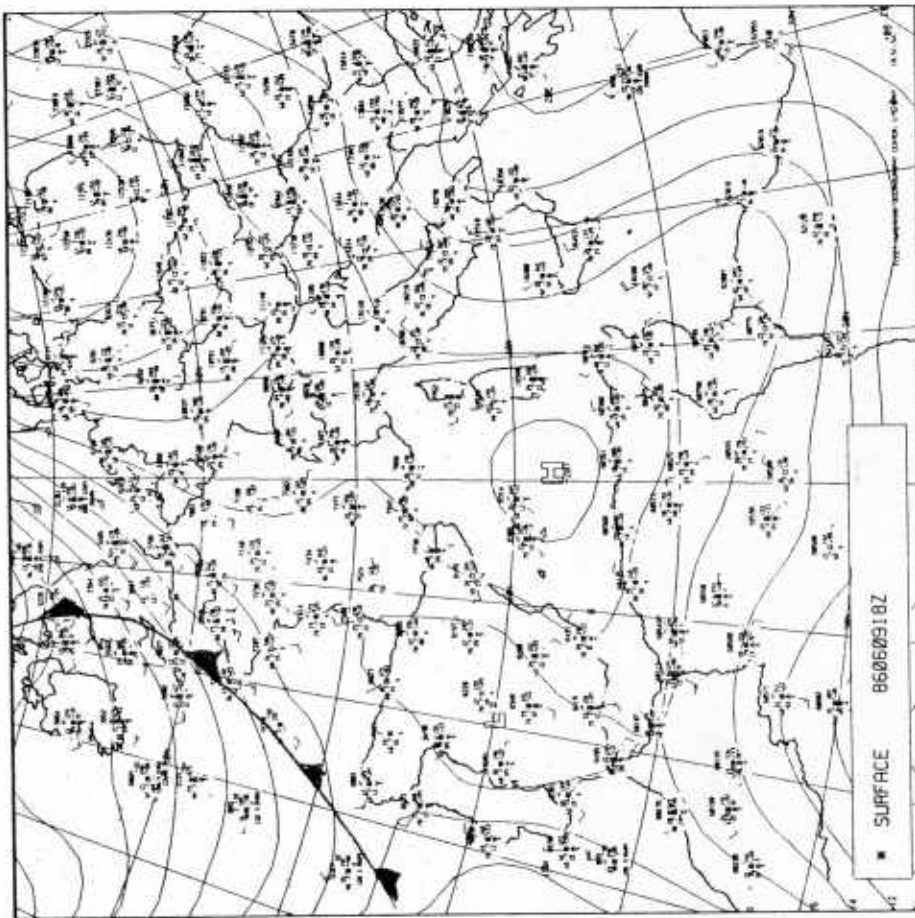




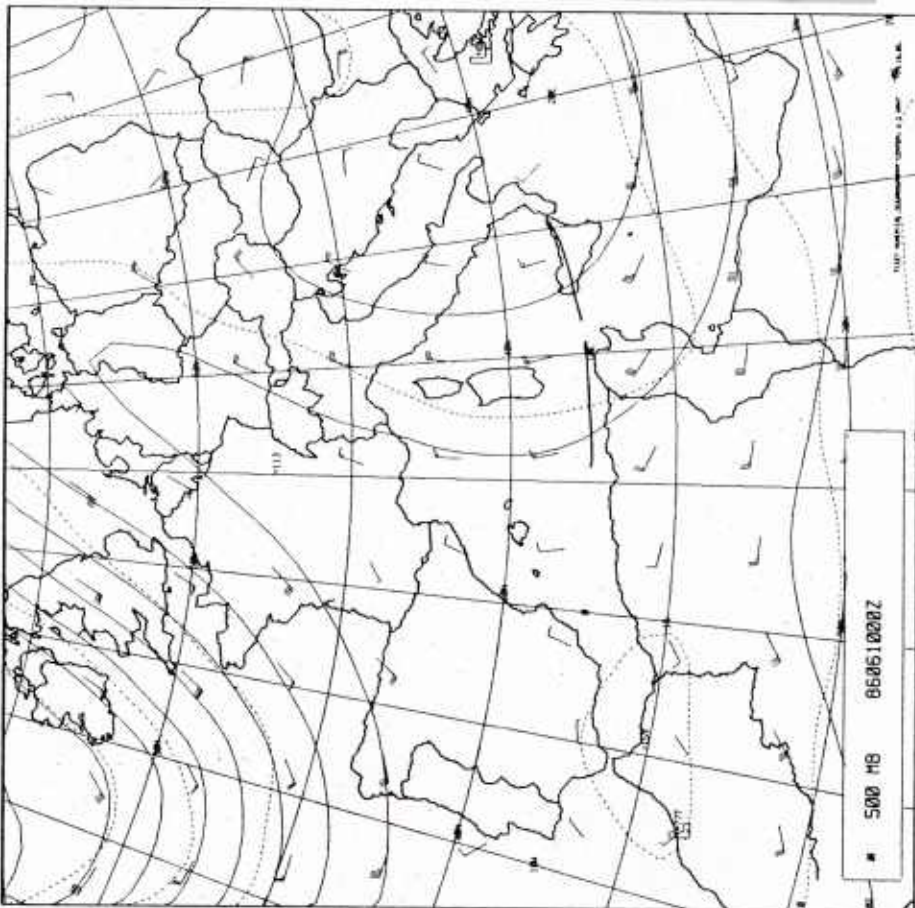
METEOSAT 1986 MONTH 6 DAY 9 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAW DATA SLOT 24 COPYRIGHT - ESA -



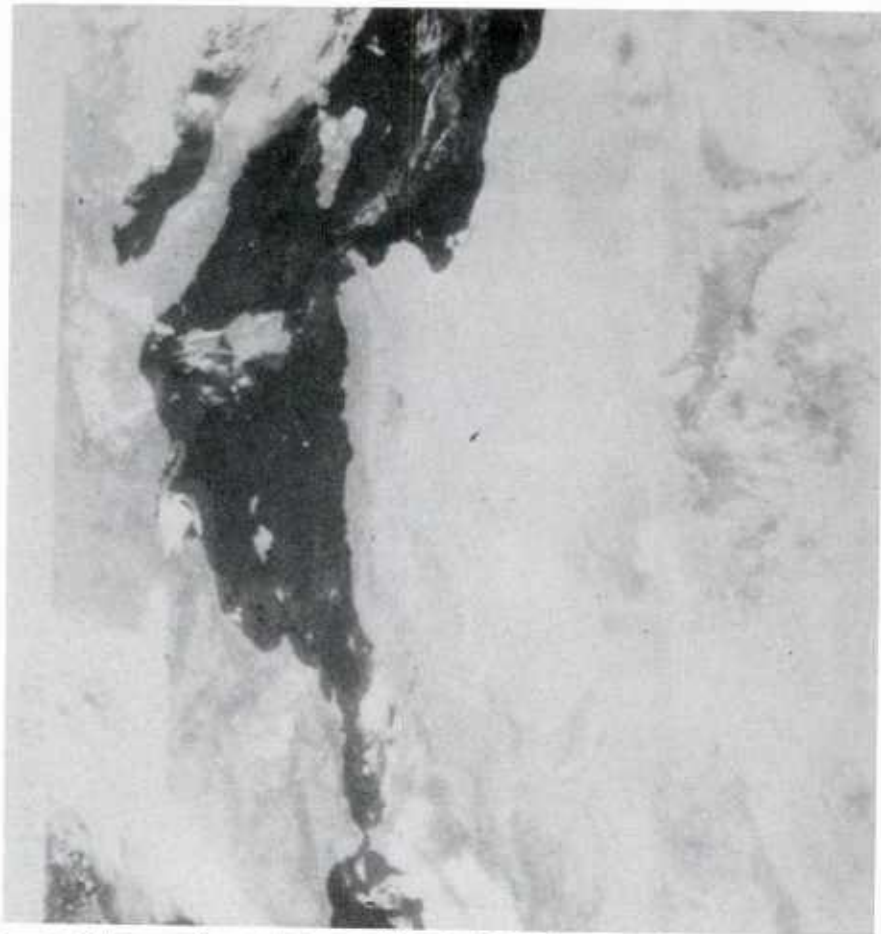
Weather remains the same in the West Med as the stationary high remains dominate. Wind flow in the Alboran Sea has become more easterly, with speeds of 15 to 25 kts being reported.



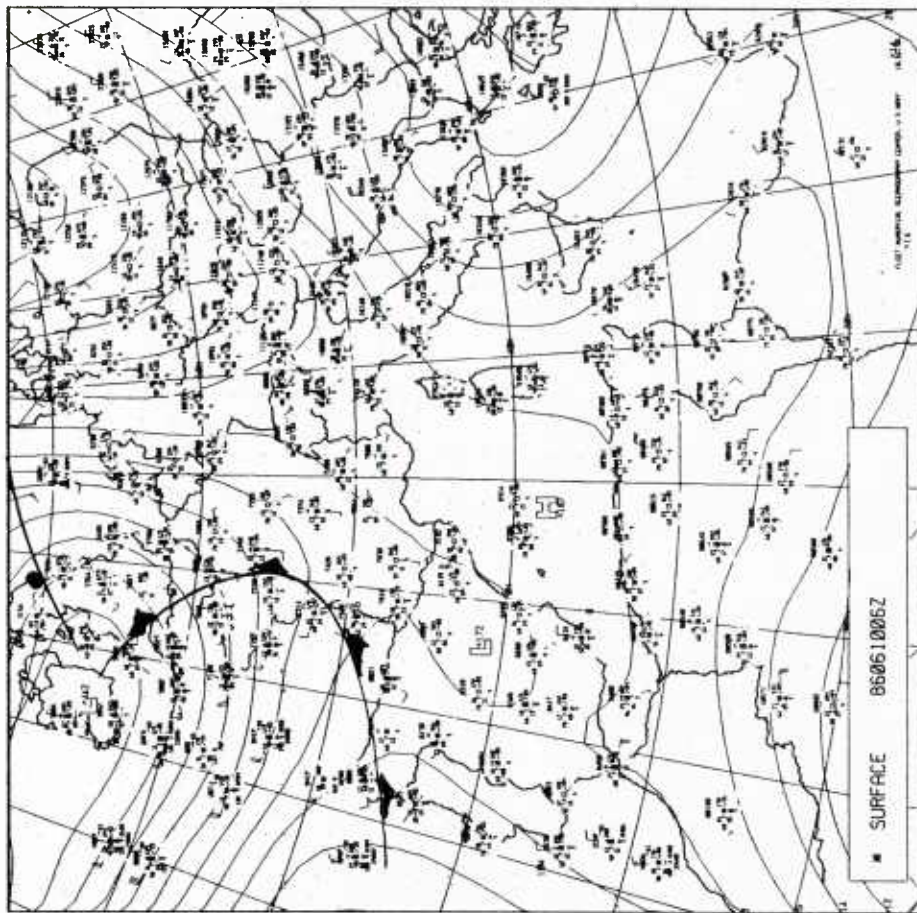
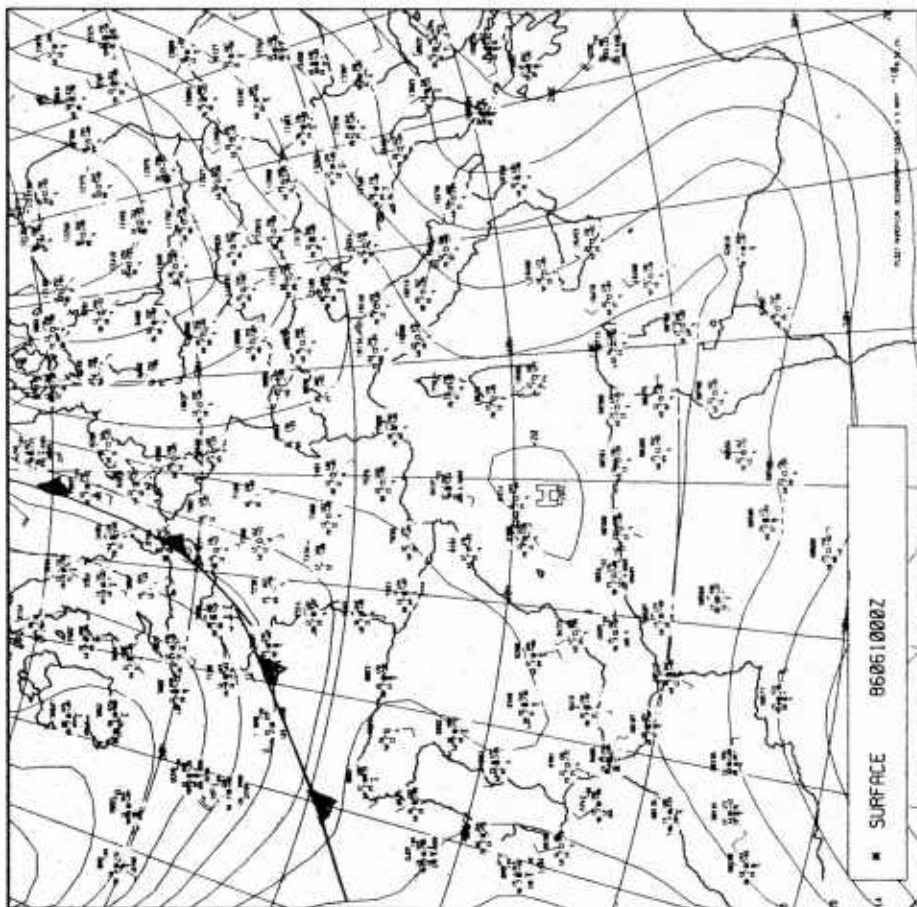
The West Med stationary high remains the dominate feature. Only Ci is being reported throughout the West Med.

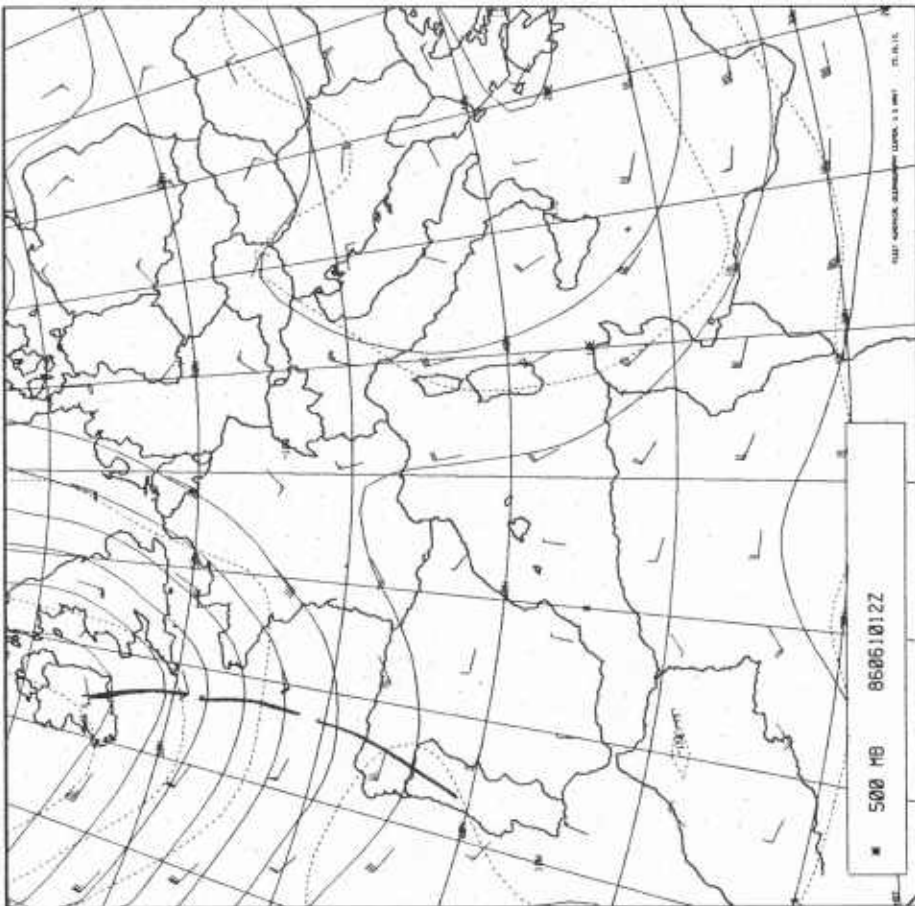


The ridge over western Europe is being pinched between the Atlantic trough and the low isohight over Greece. Northerly winds continue over the West Med.

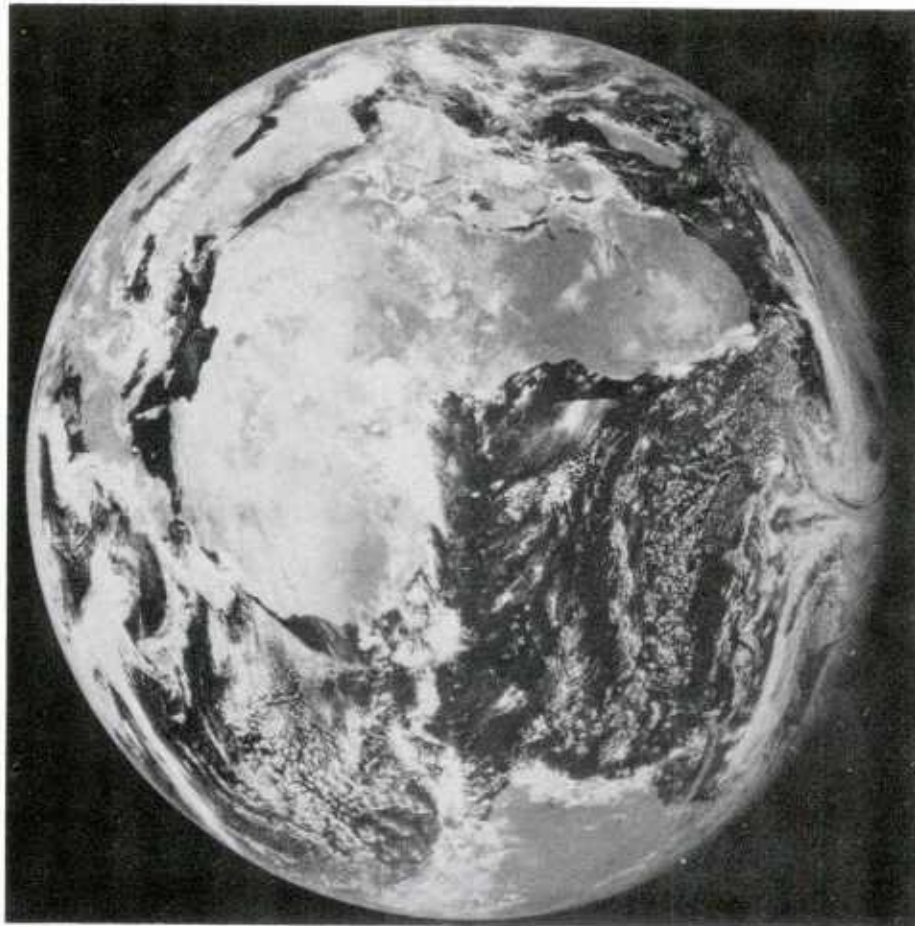


10 JUN 86 0900 GMT VIS



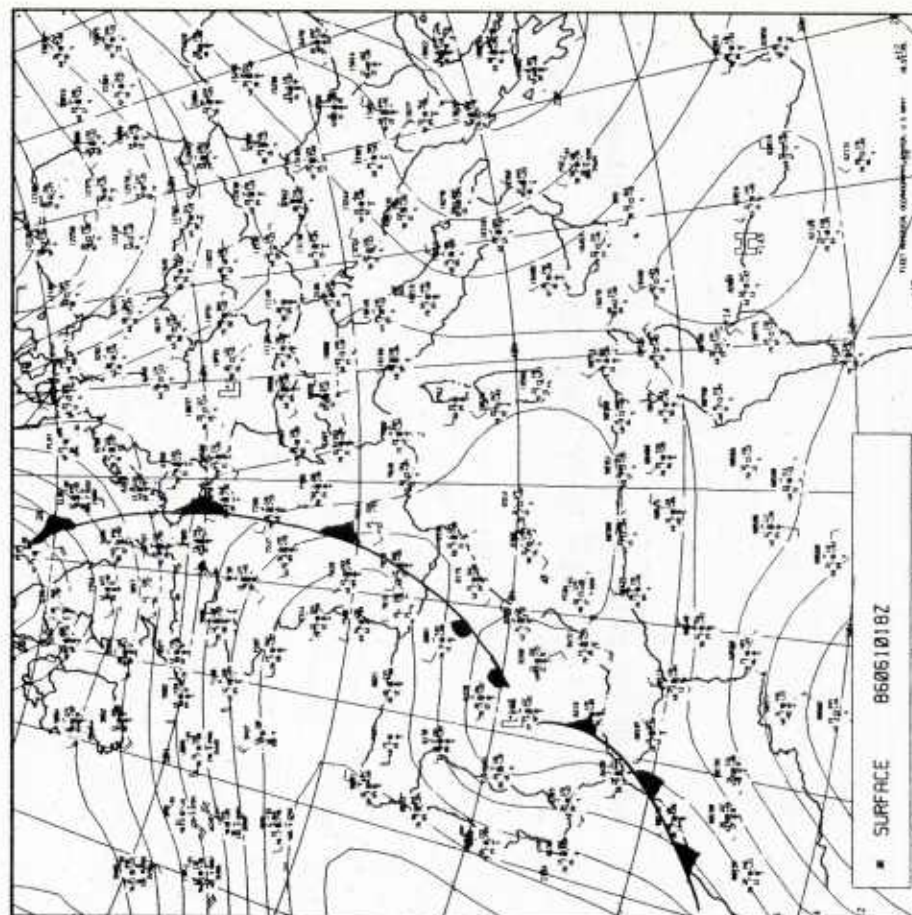
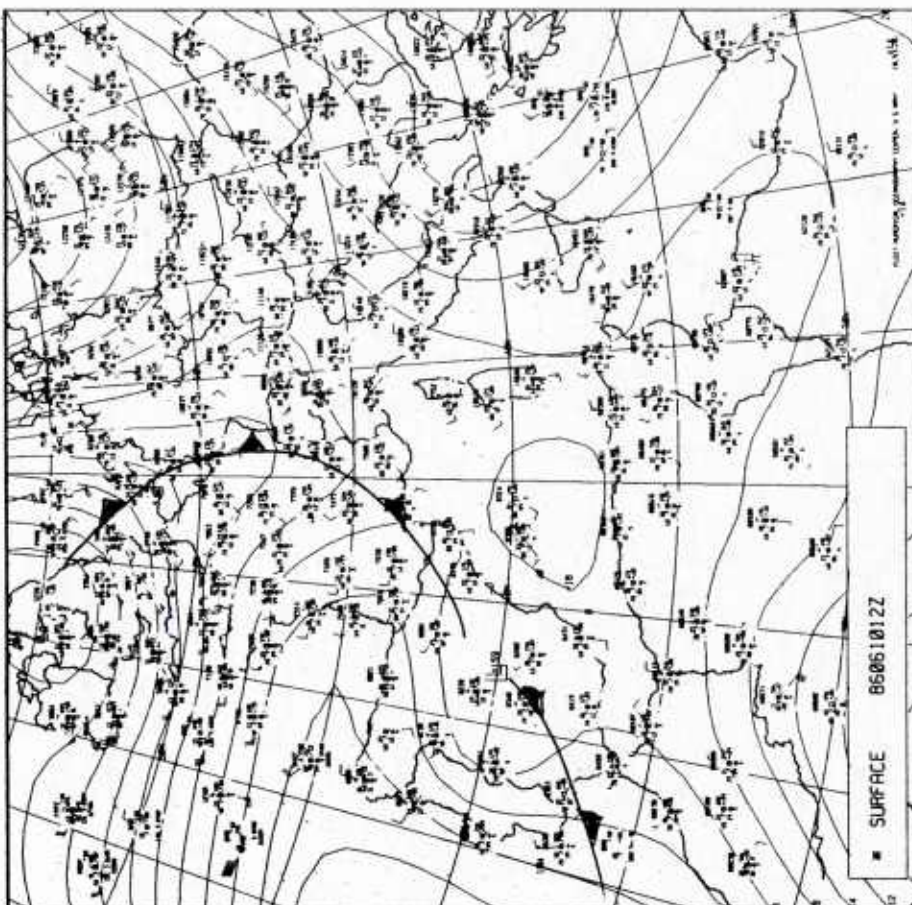


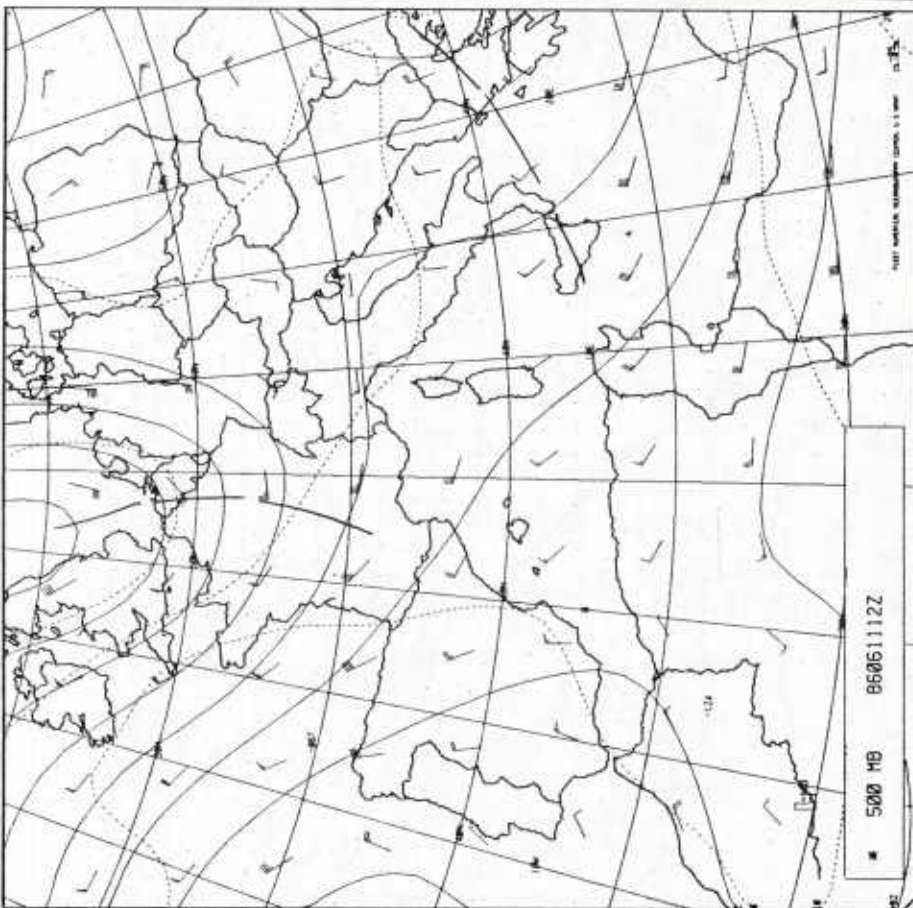
A low isobars is moving into the British Isles with an associated trough extending into Portugal. Moderate northerly winds exist in the central West Med.



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1986 MONTH 6 DAY 10 TIME 1155 GMT (MORTO) CH. VIS 2
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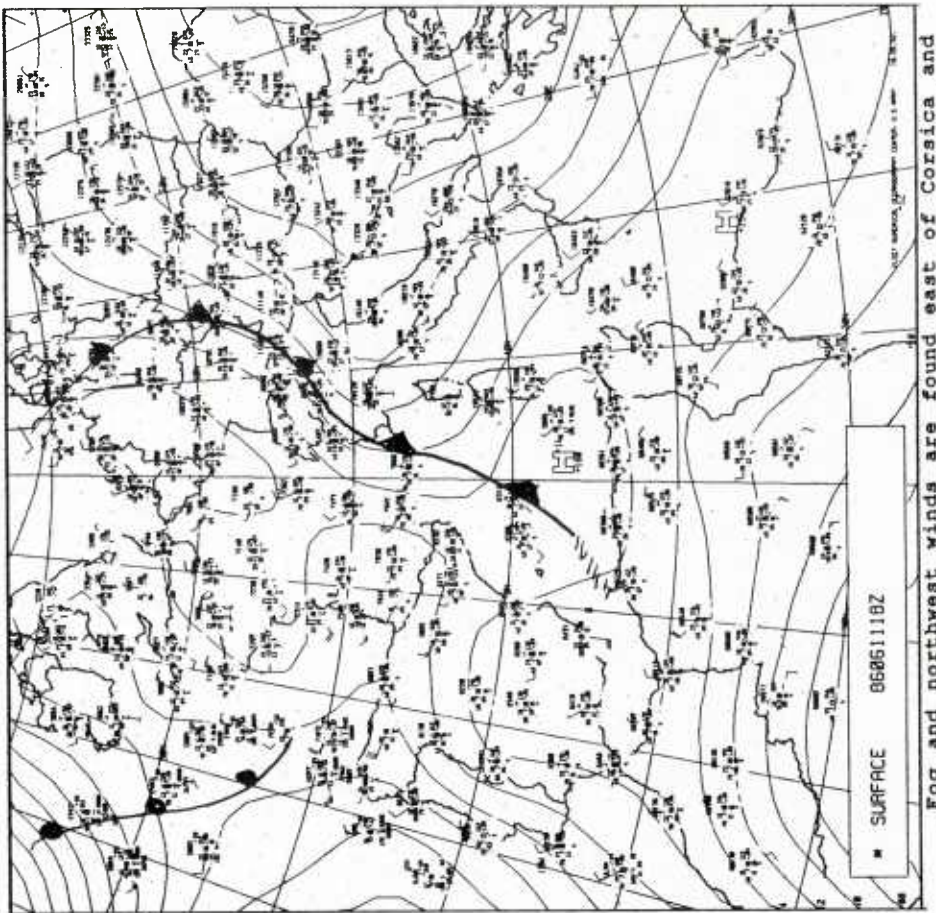
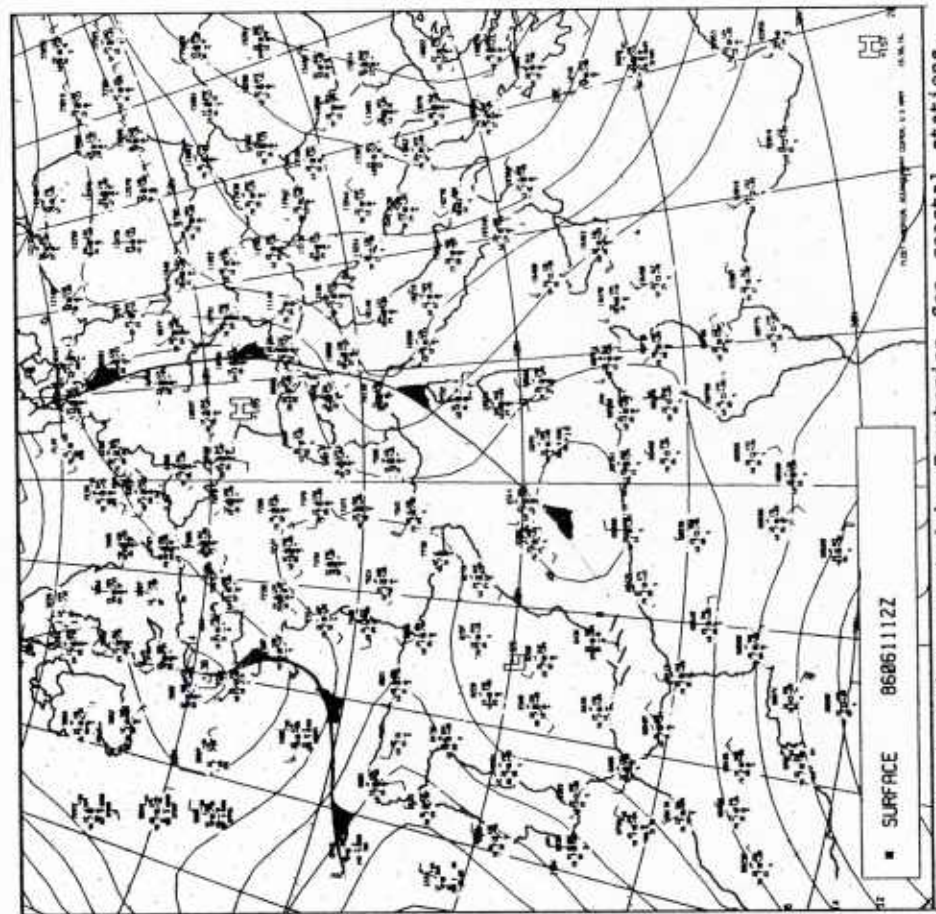


The gradient has relaxed over the Tyrrhenian Sea causing decreased wind speeds. The wind flow continues to be northwesterly.

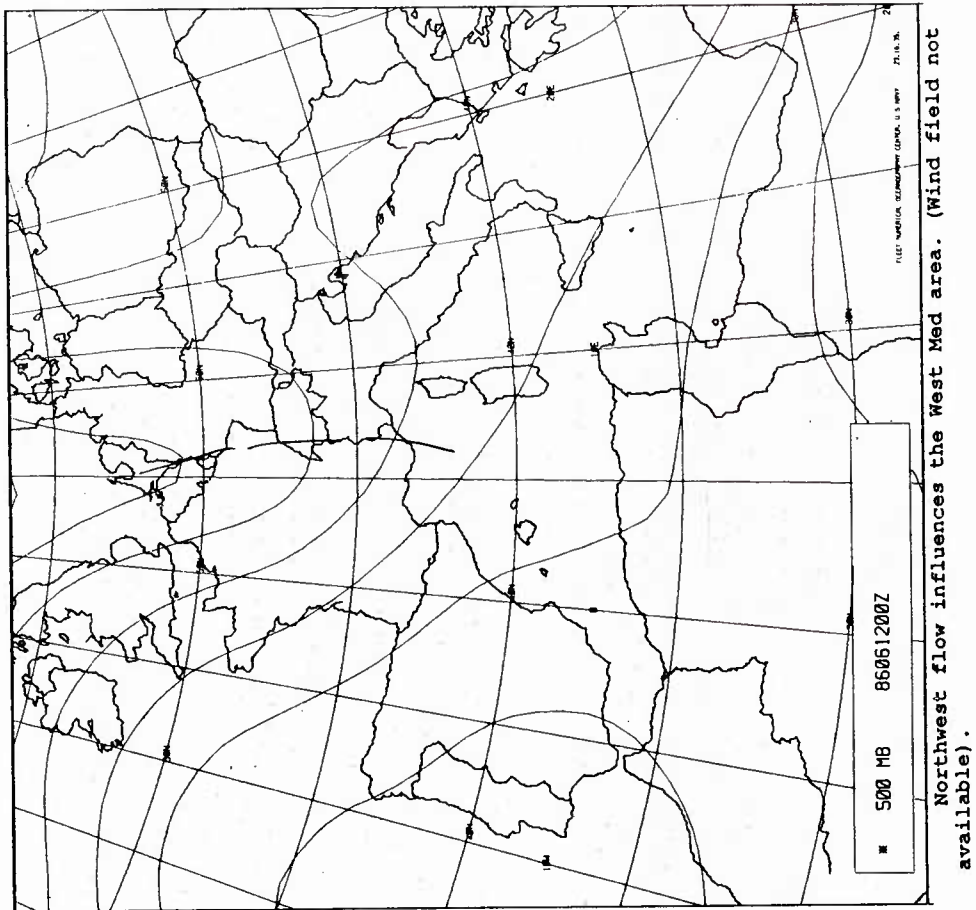


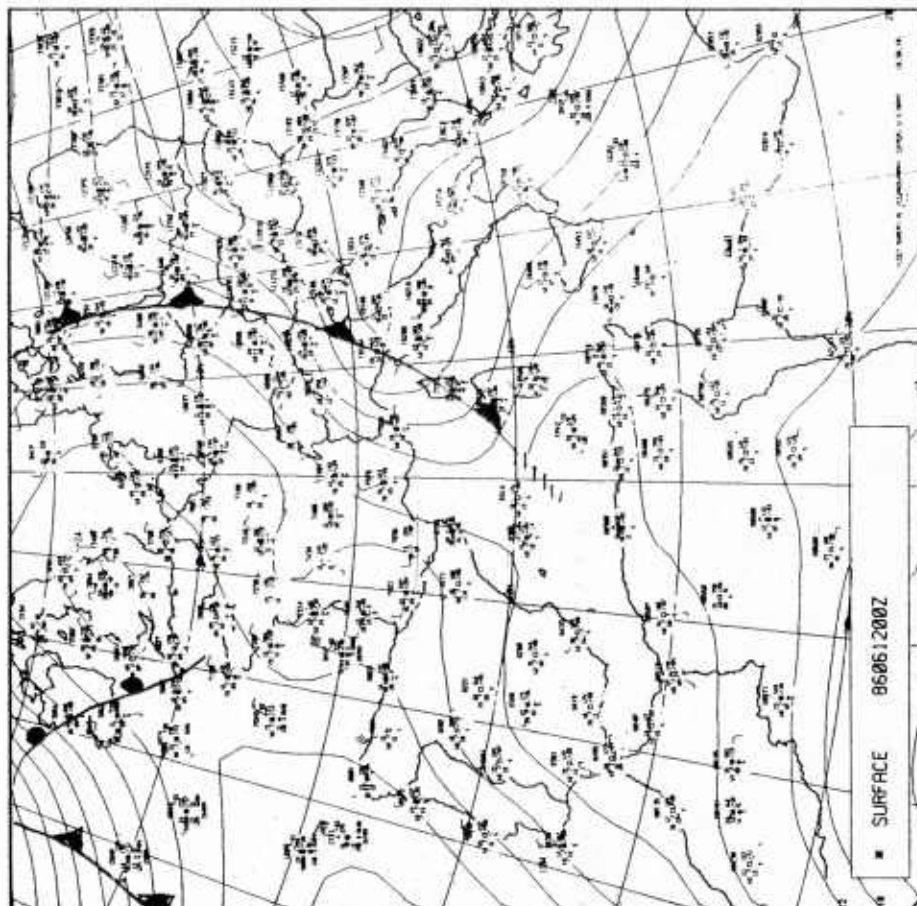
METEOSAT

1986 MONTH 6 DAY 11 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAM DATA SLOT 24 COPYRIGHT - ESA -

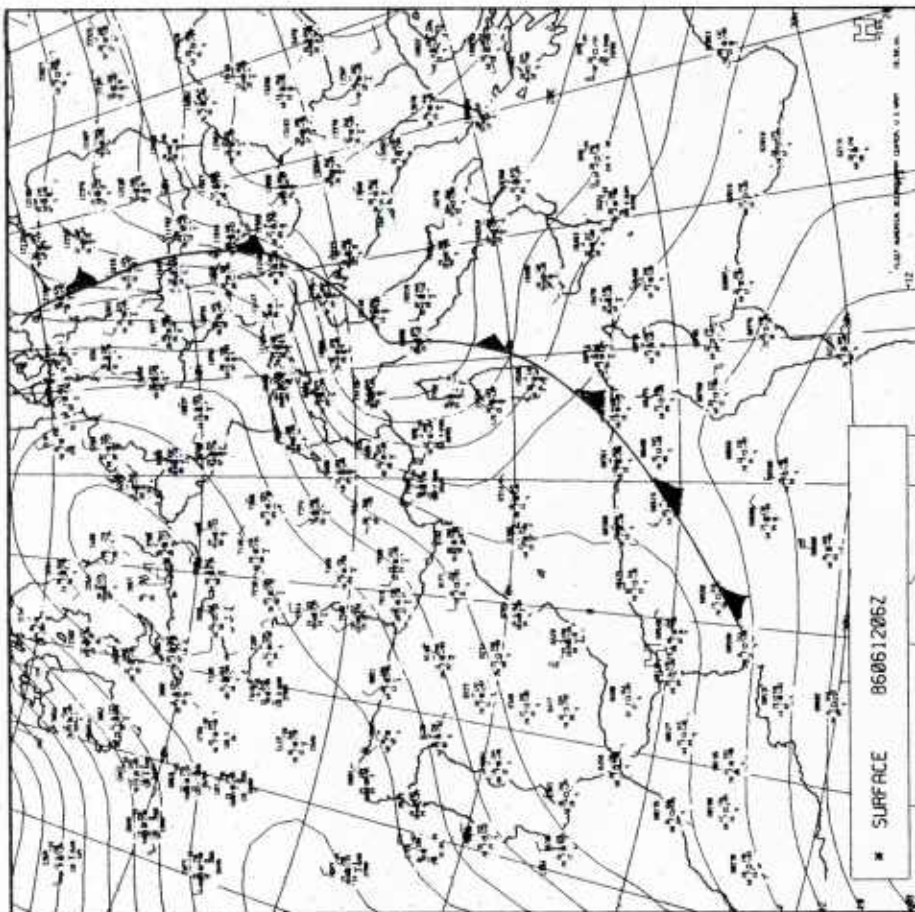


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FOR THIS DATE AND TIME

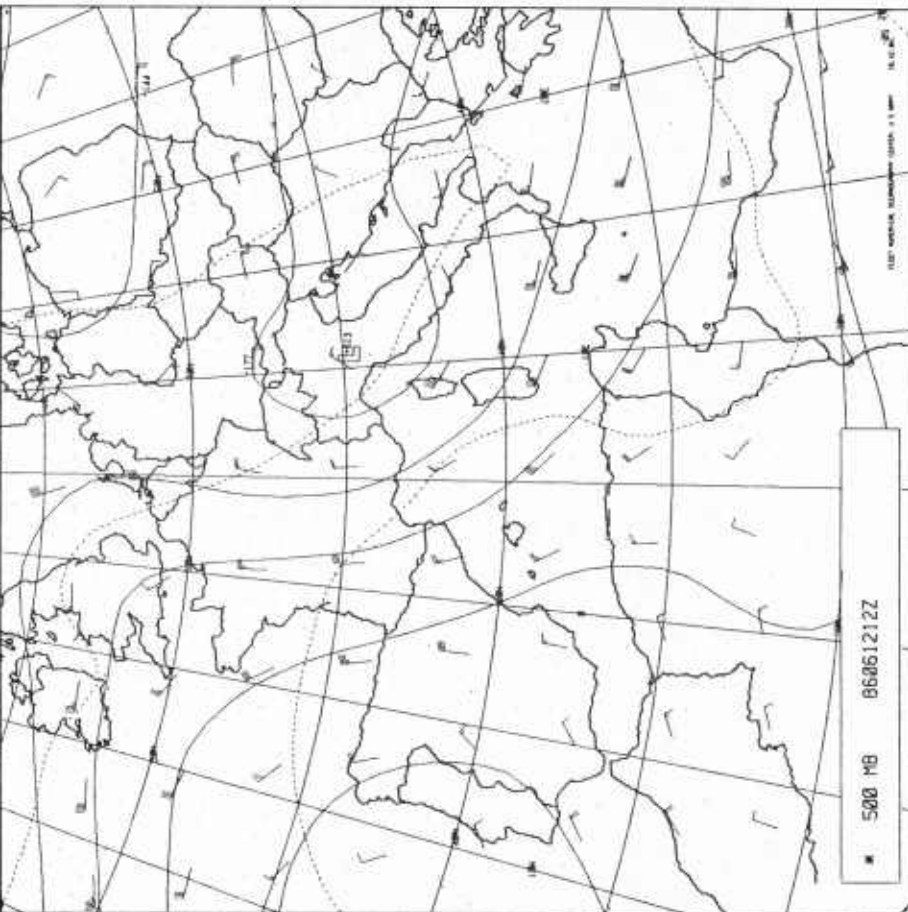




Tyrrhenian Sea coastal stations continue reporting visibility ranges of 4-10 km in light fog. The slow moving cold front continues drifting southeast.



Light fog with visibility ranges of 5 to 10 km are reported in the southern Tyrrhenian Sea. The weak slow moving cold front continues sliding southeast. Cyclogenesis is occurring over northern Italy.

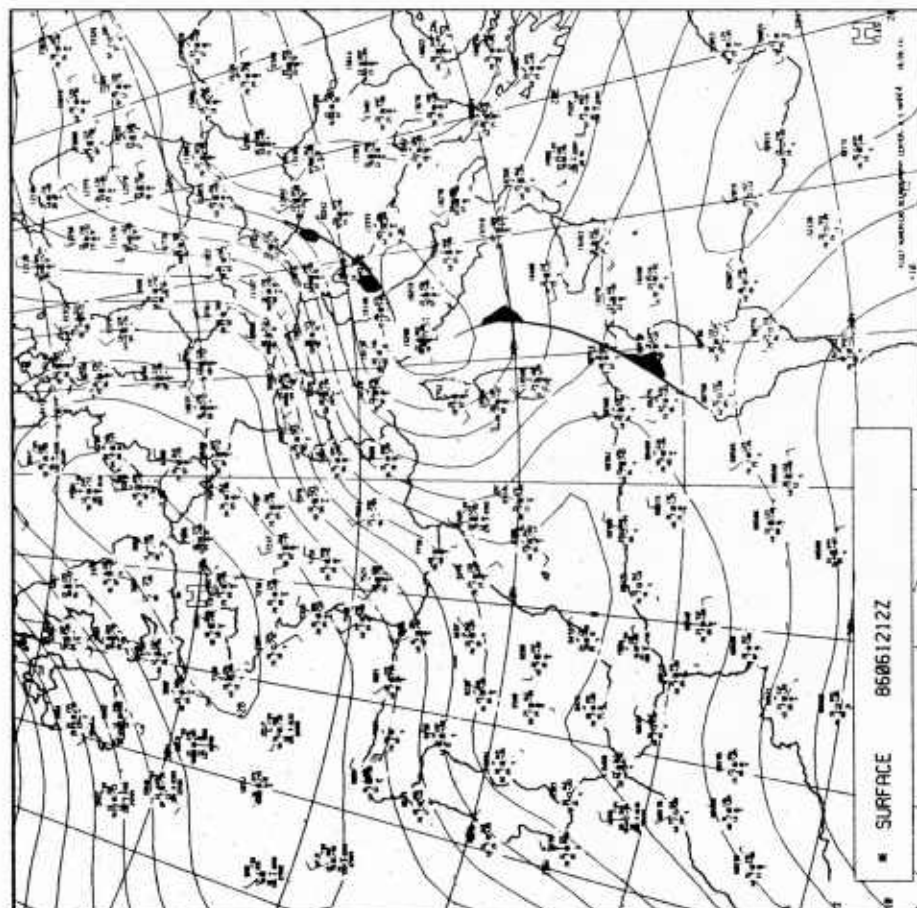


A low isohight is forming over northern Italy. Moderate northwest winds continue over the West Med.

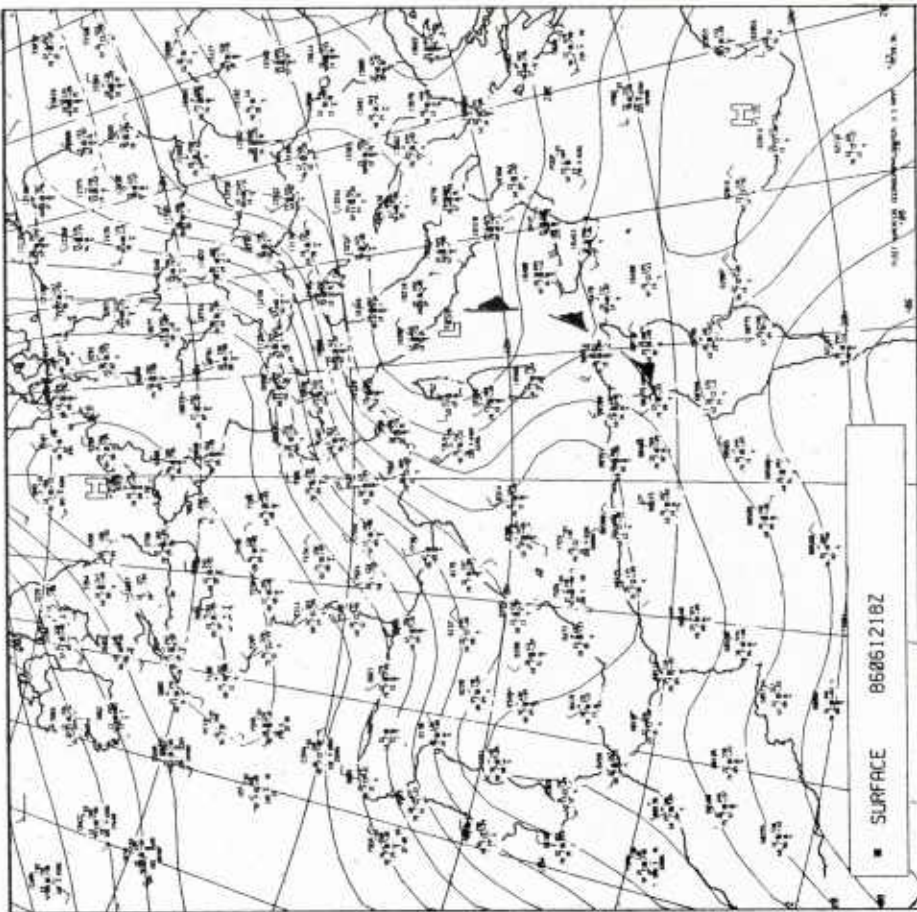


METEOSAT

1986 MONTH 6 DAY 12 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAW DATA SLOT 24 COPYRIGHT - ESA -

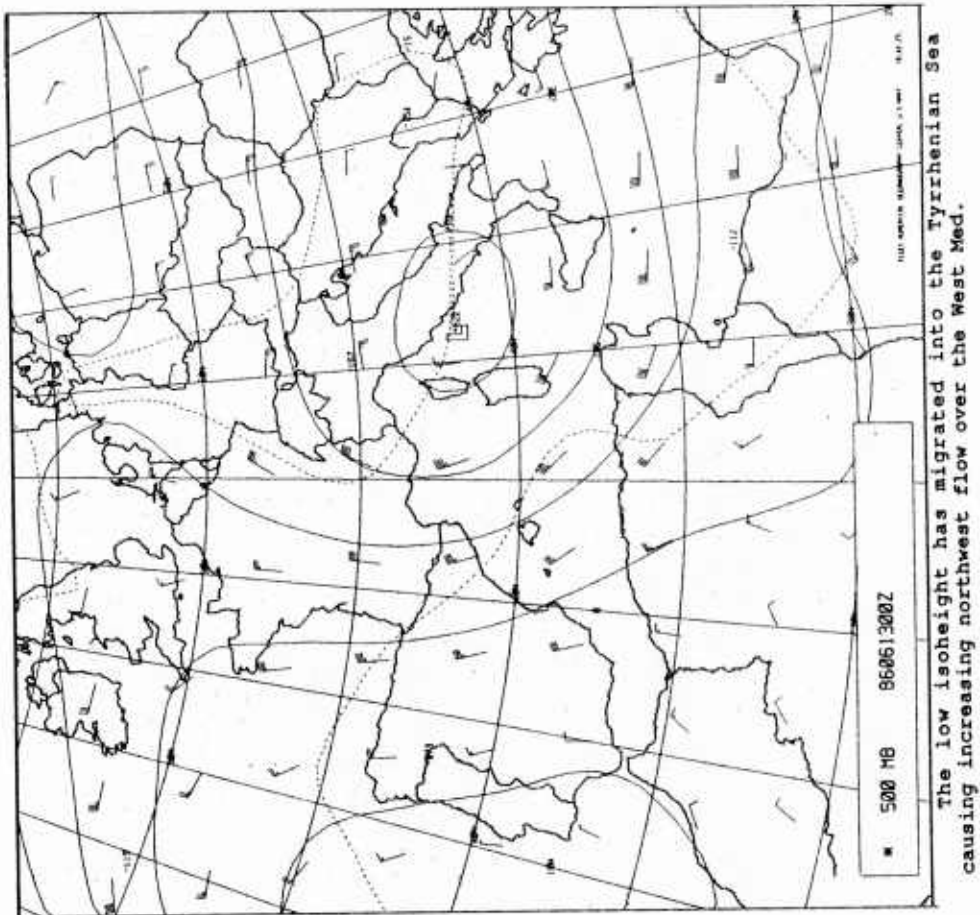


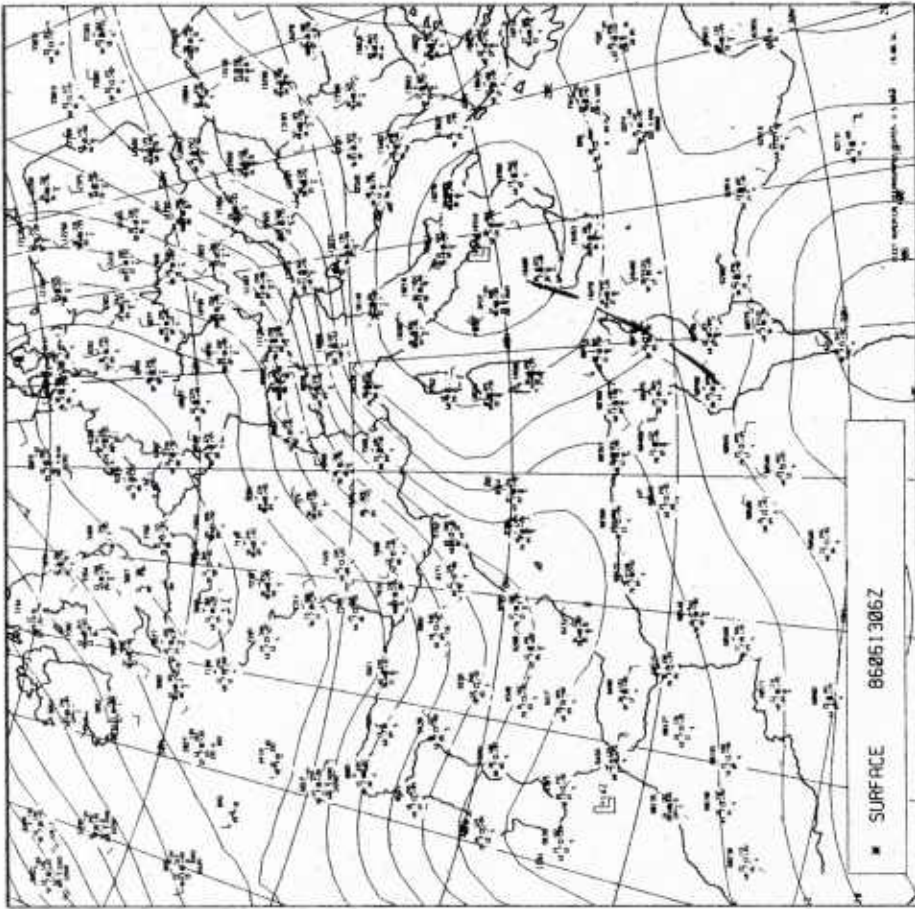
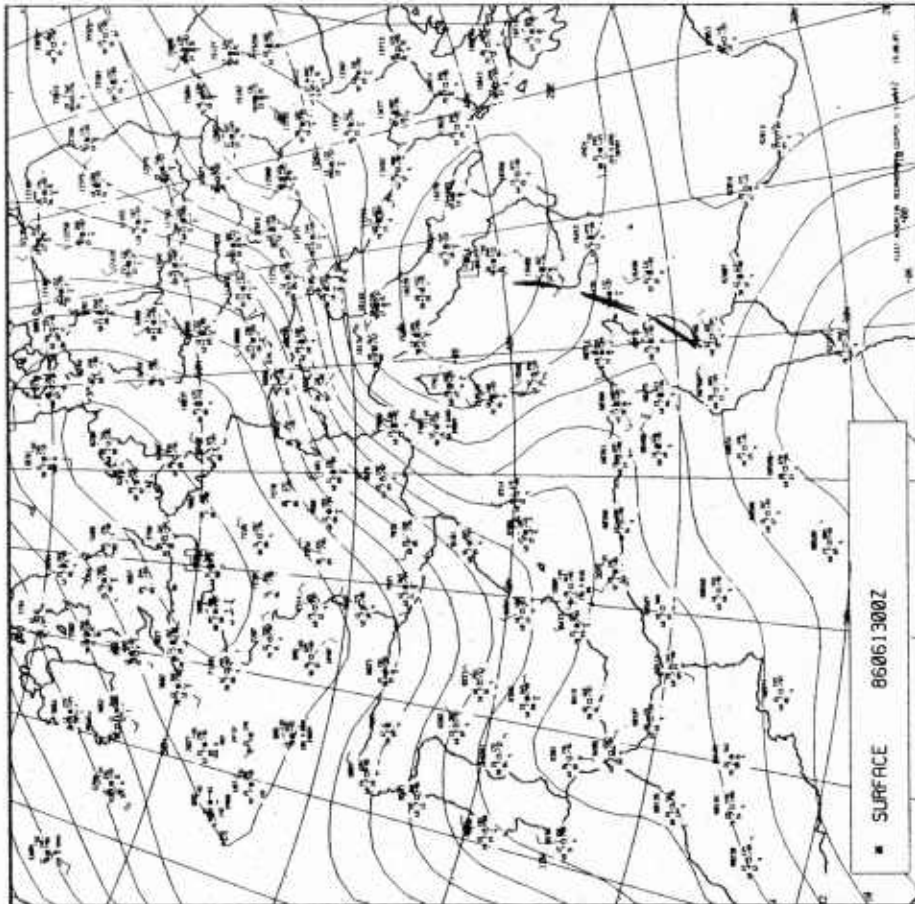
A low has moved off Italy into the northern Tyrrhenian Sea. Its associated cold front extends into Algeria. Mostly northwesterly flow covers the West Med. Ci is reported along the Spanish coast.

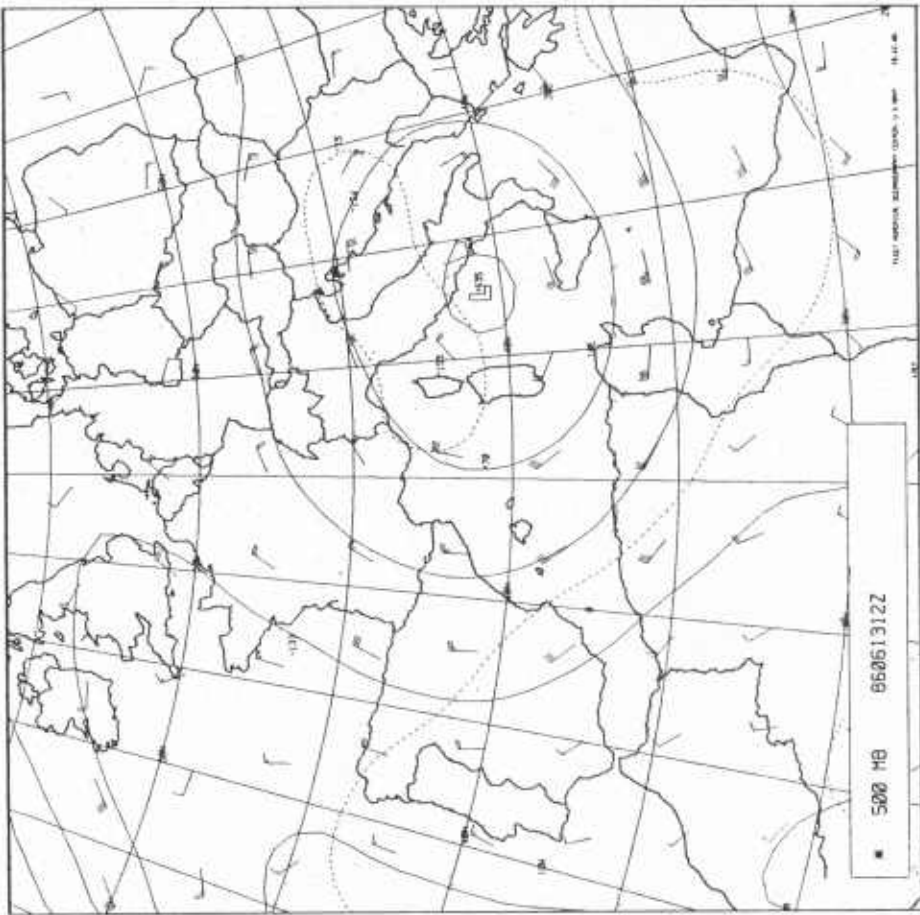


The Tyrrhenian Sea low is the major system in the West Med. Frontolysis is occurring with the cold front. Partly cloudy skies of Ac are reported in northern Sicily.

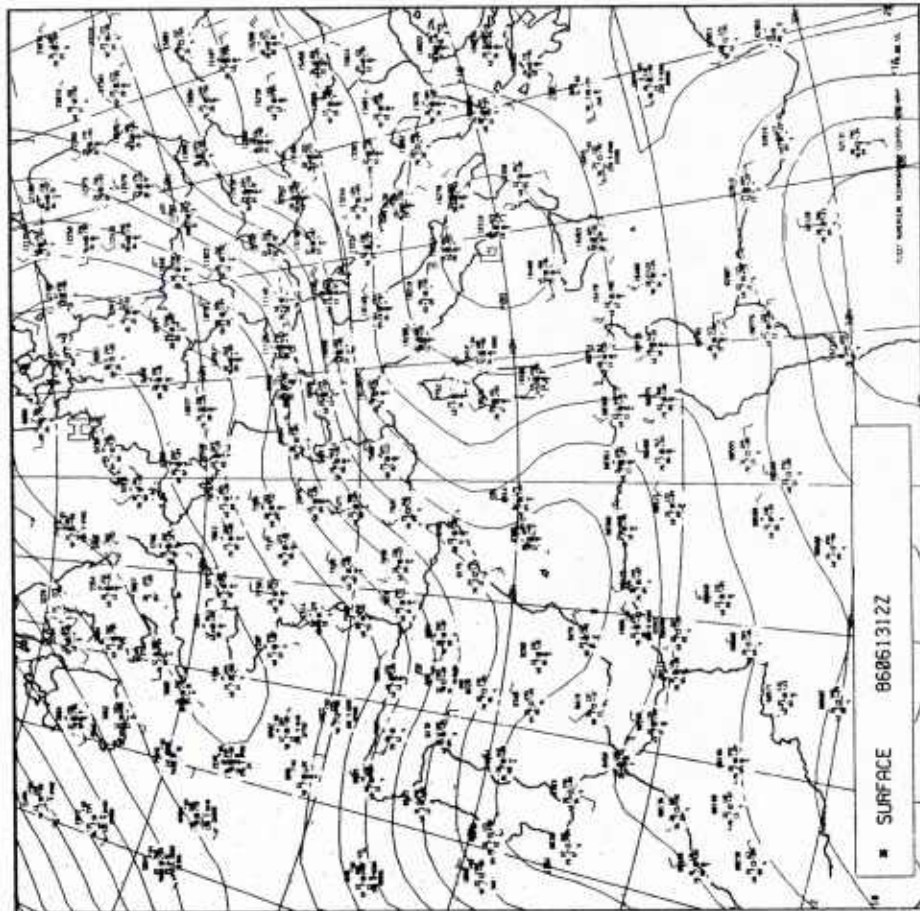
NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME



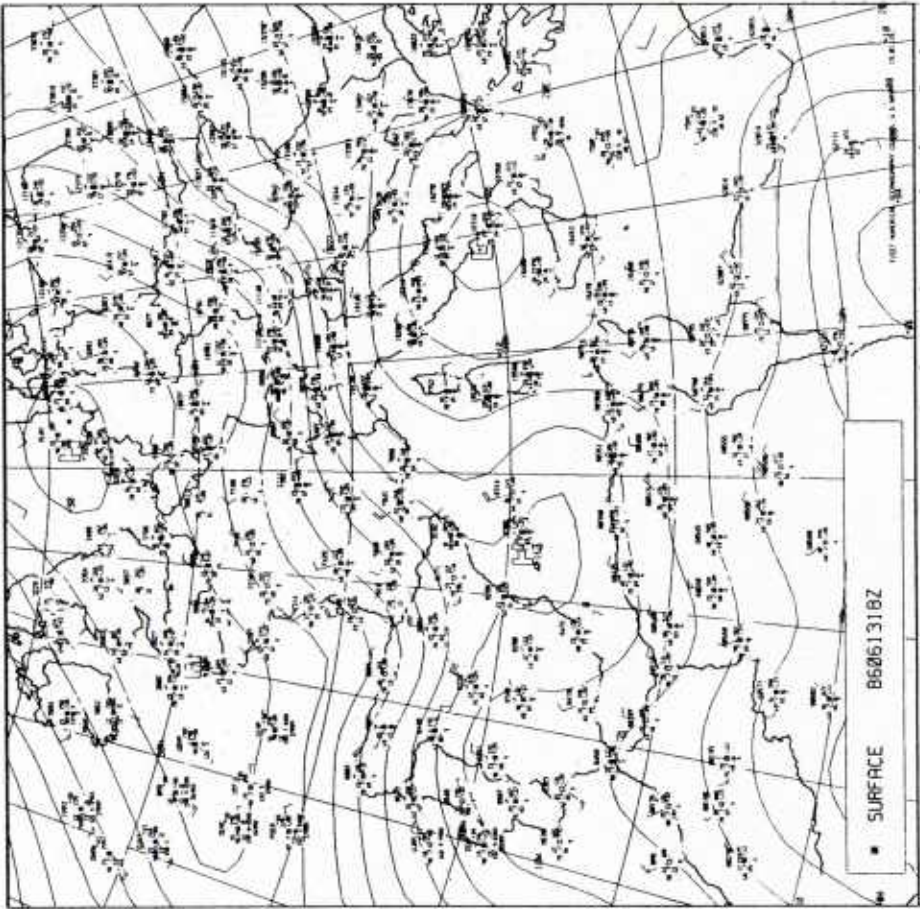




1986 MONTH 6 DAY 13 TIME 1155 GMT (NORTH) CH. VIS 2
 NOMINAL SCAN/RAM DATA SLOT 24 COPYRIGHT - ESA -

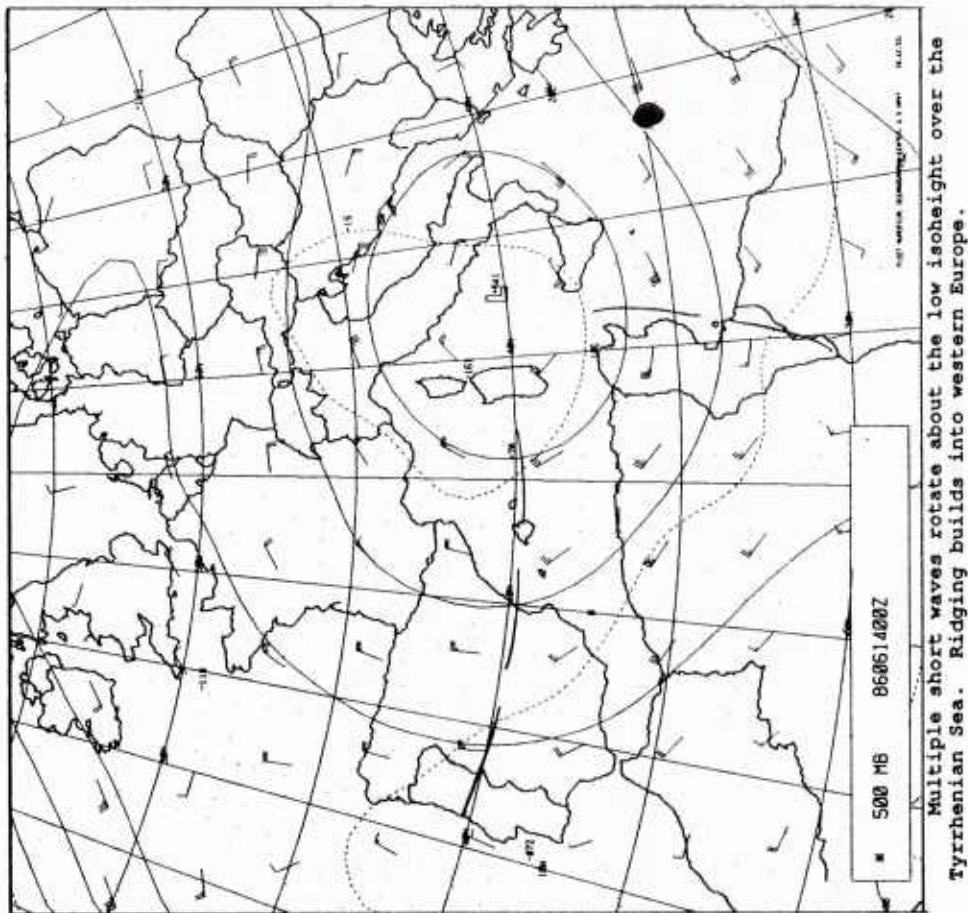


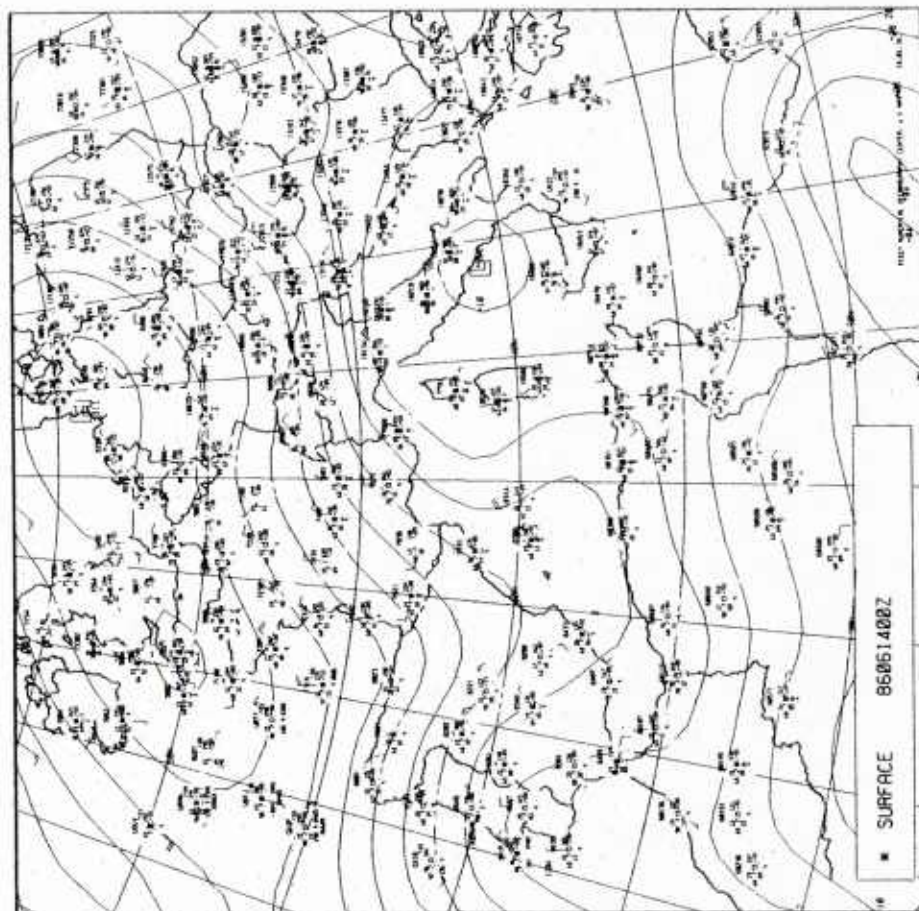
Northerly winds cover the West Med east of the Balearic Islands. The wind veers to southeast in the Alboran Sea.



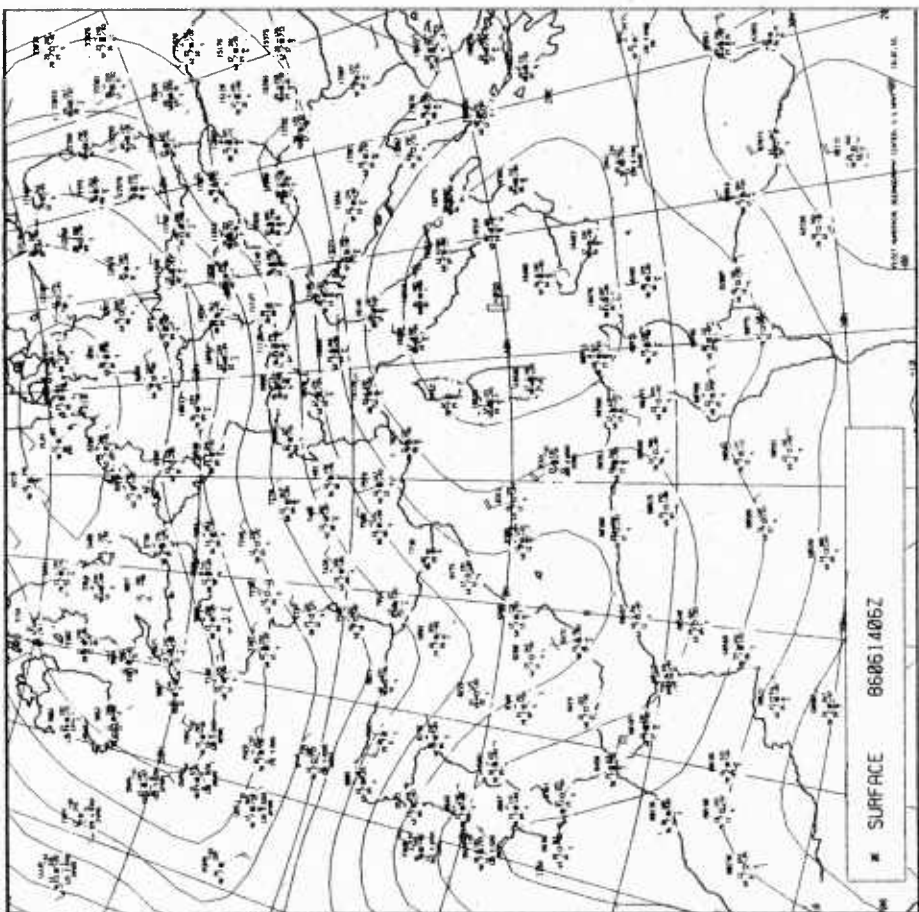
Rain and drizzle are reported along the Tyrrhenian Sea's Italian Coast. A high develops over the Balearic Islands. A complex high system is pushing into western Europe.

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FOR THIS DATE AND TIME

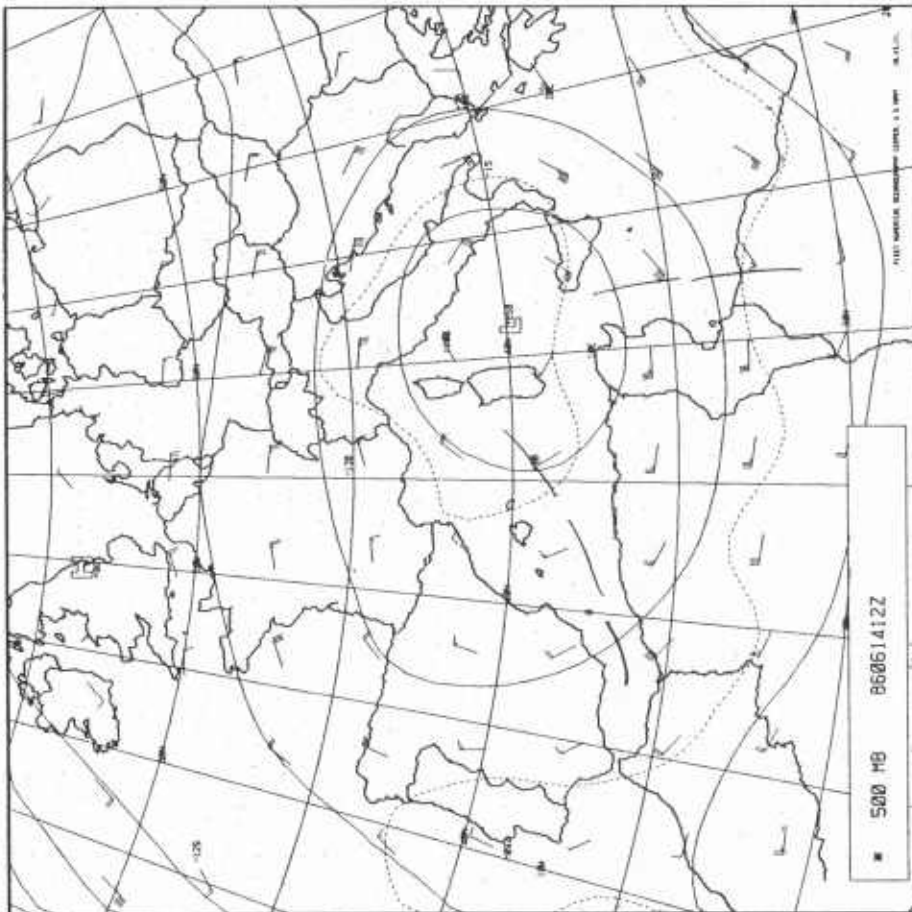




The Tyrrhenian low fills 2 mb. The gradient slackens around the low creating light and variable winds through most of the West Med.

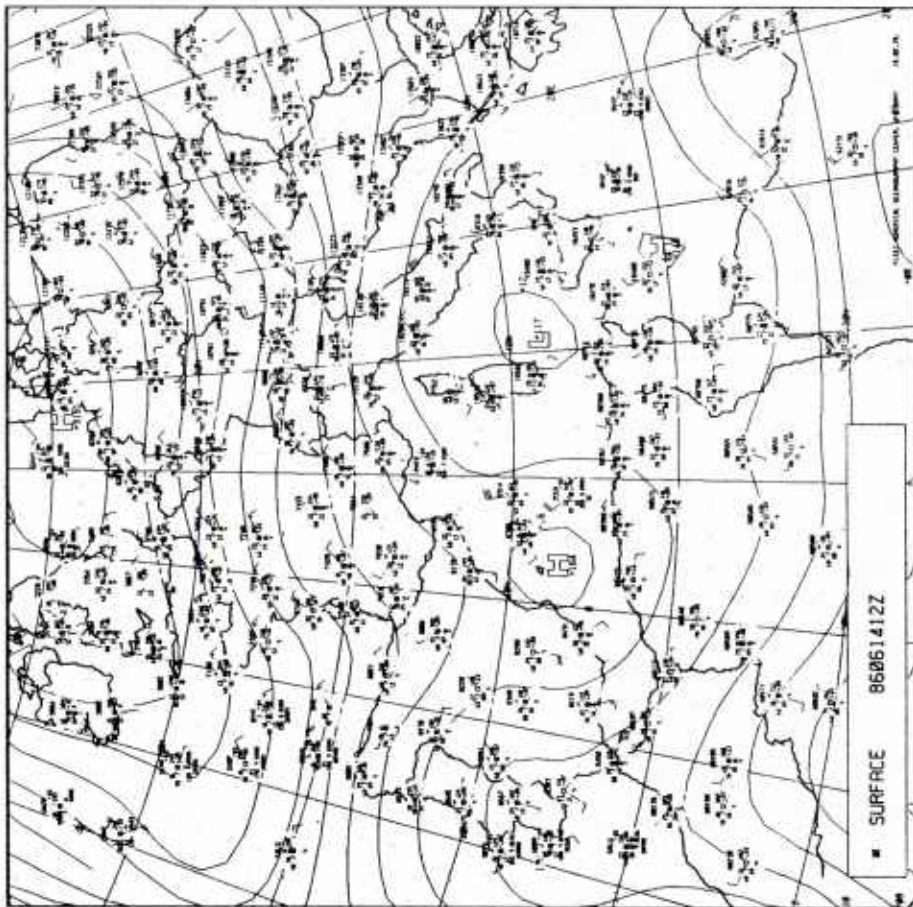


The low continues filling and is now drifting westward. The surface system is vertically stacked with the 500 mb low isobar, indicating little movement and filling in the near future. The ship near 38.8N 005.7E reports 10 km visibility, thin AC, and northwest winds at 20 kts.

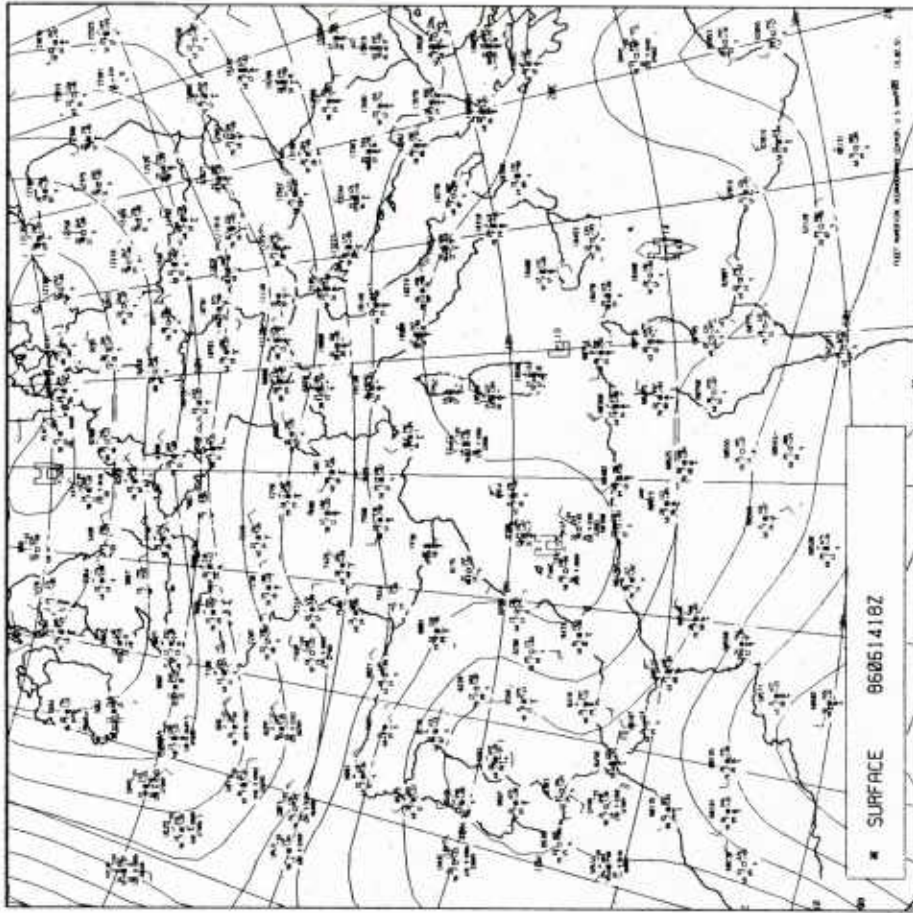


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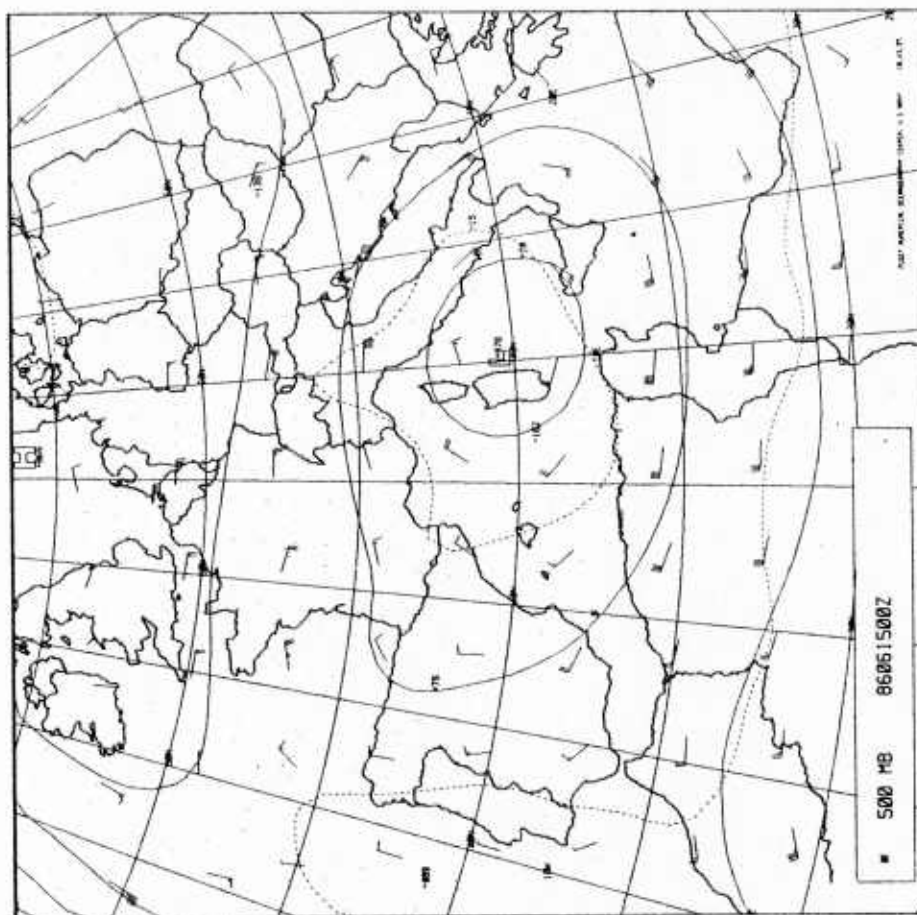
1986 MONTH 6 DAY 14 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN-RAW DATA SLOT 24 COPYRIGHT - ESA -



High pressure again dominates the Spanish Mediterranean coast. The Tyrrhenian low continues filling and drifting westward.

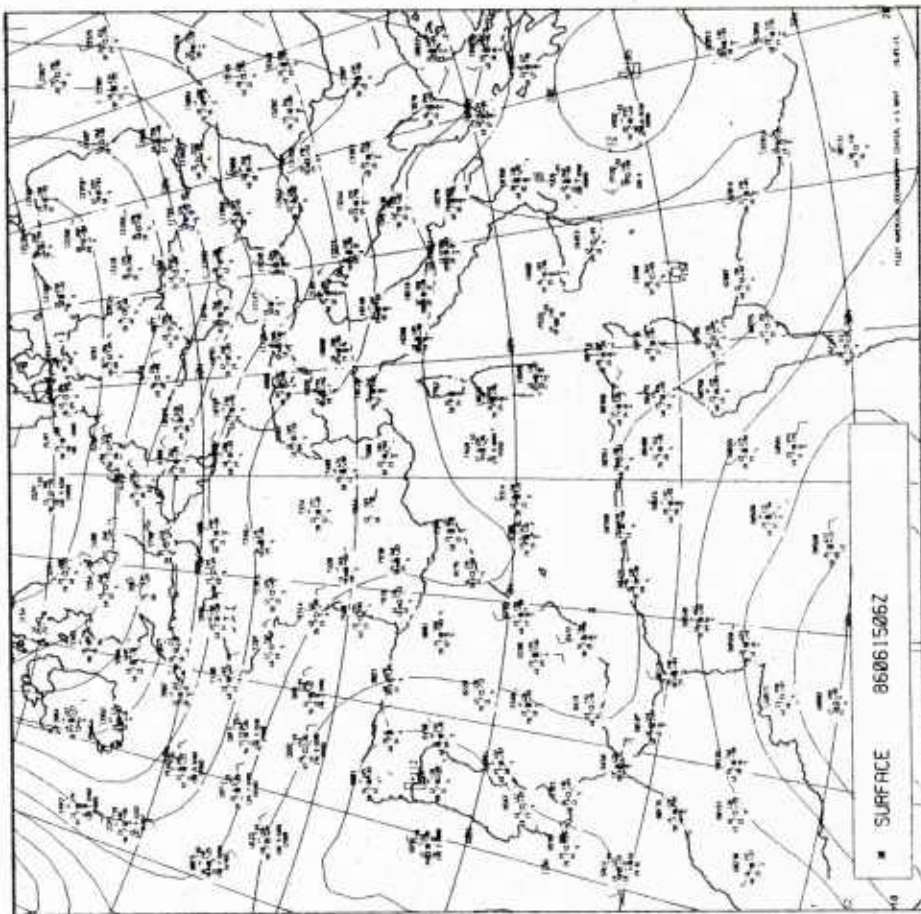
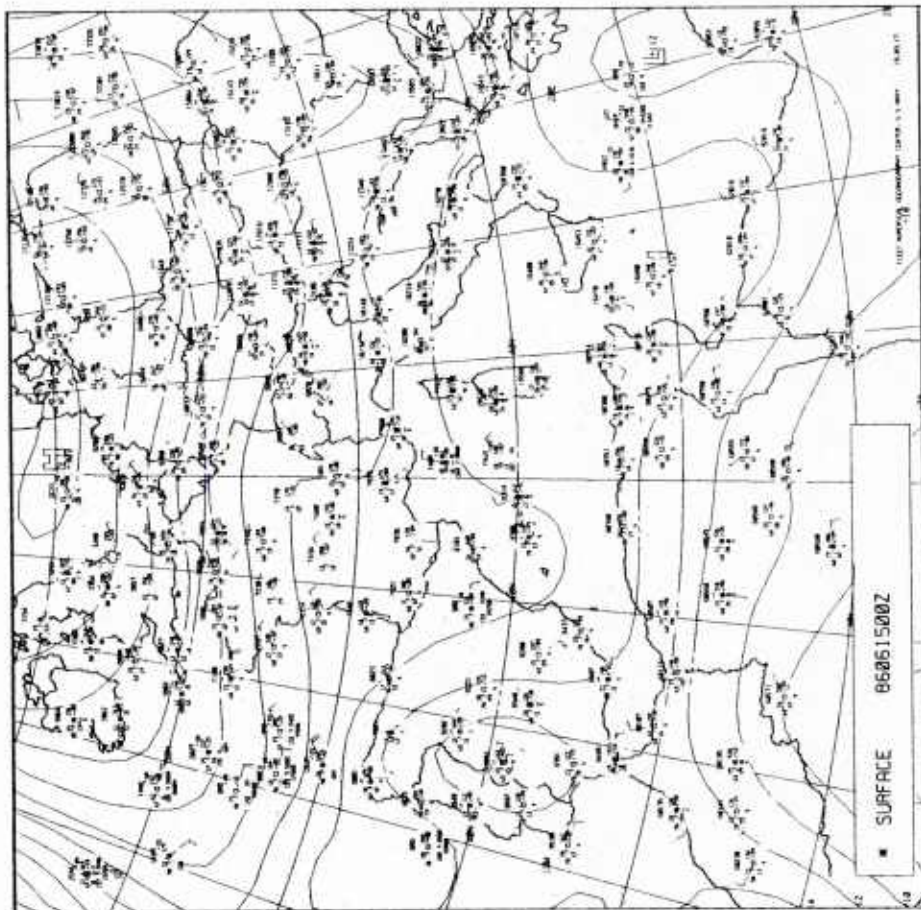


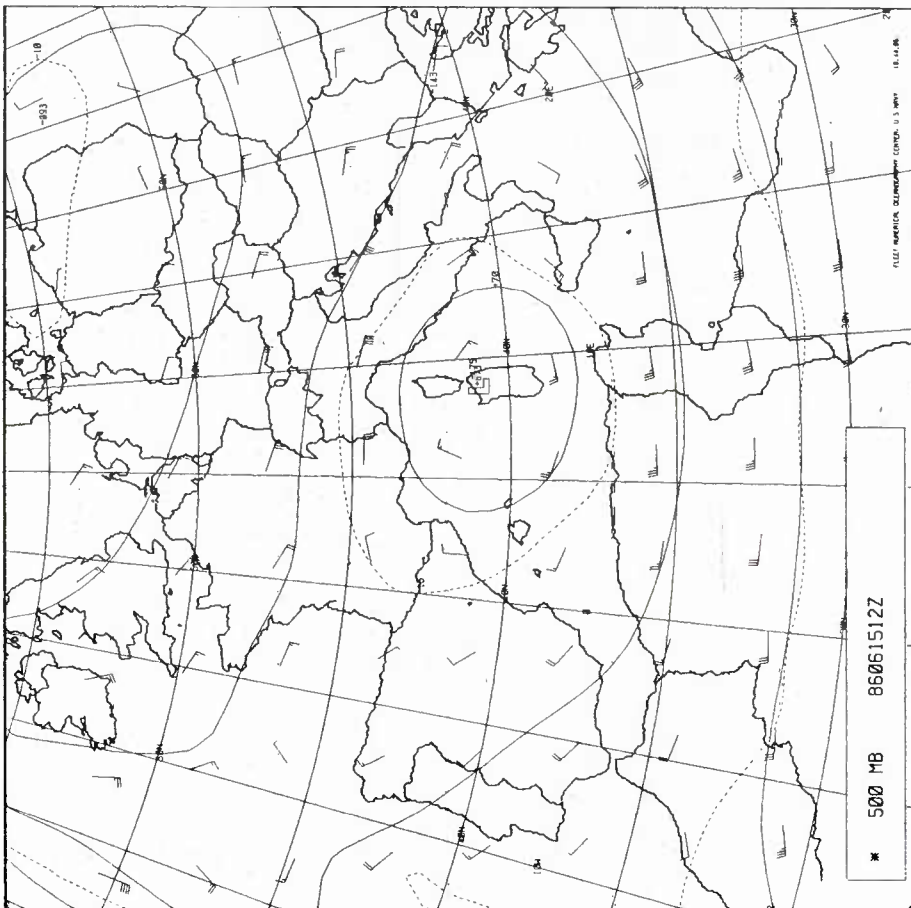
A flat high pressure begins to influence the West Med as the Tyrrhenian low fills. The ship near 42N 05E reports rain has ended in the past hour with drizzle ending in the past 3 hours. The winds in the Alboran increase as the gradient around the high steepens.



A high pressure cell blocks the westerlies over Europe. The Tyrrhenian low fills 100 meters and is nearly stationary.

NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME

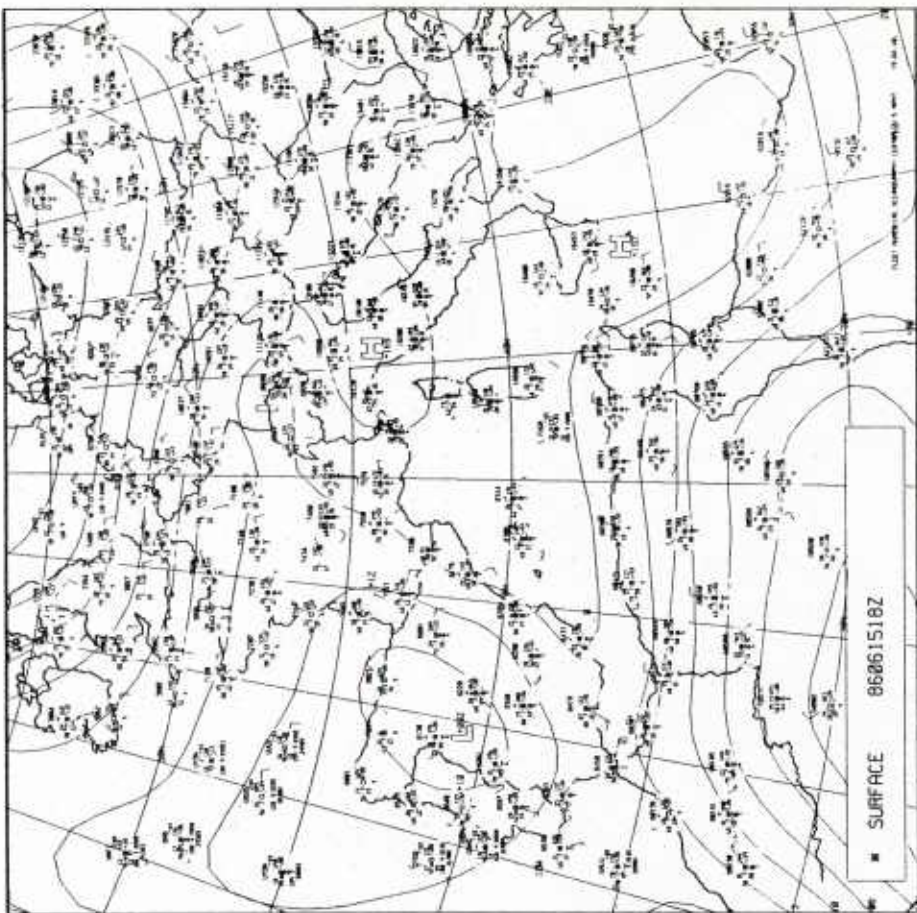
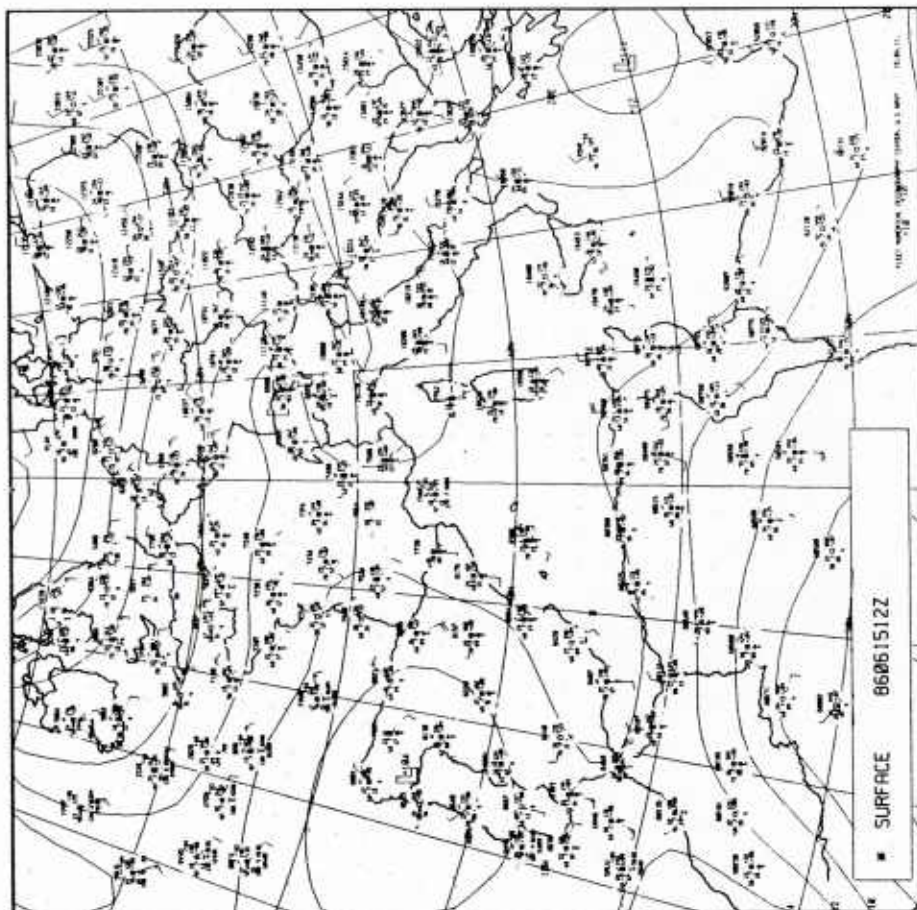




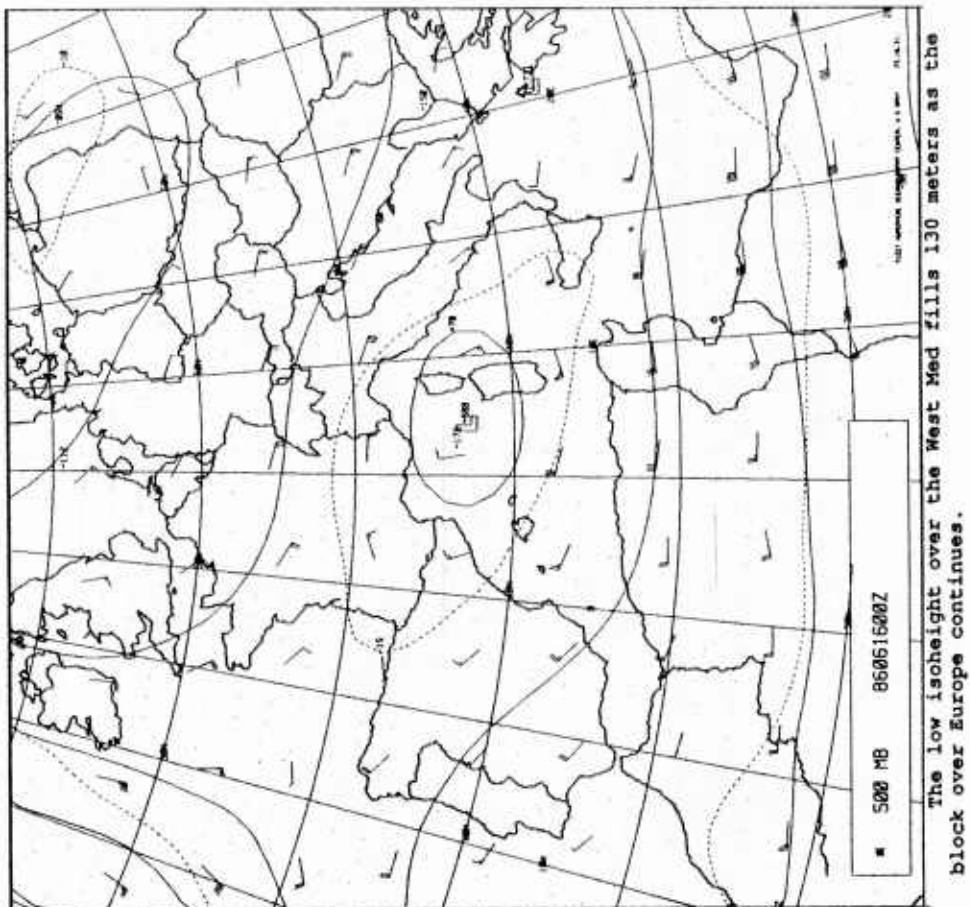
Blocking over Europe continues. The low slowly retrogrades.

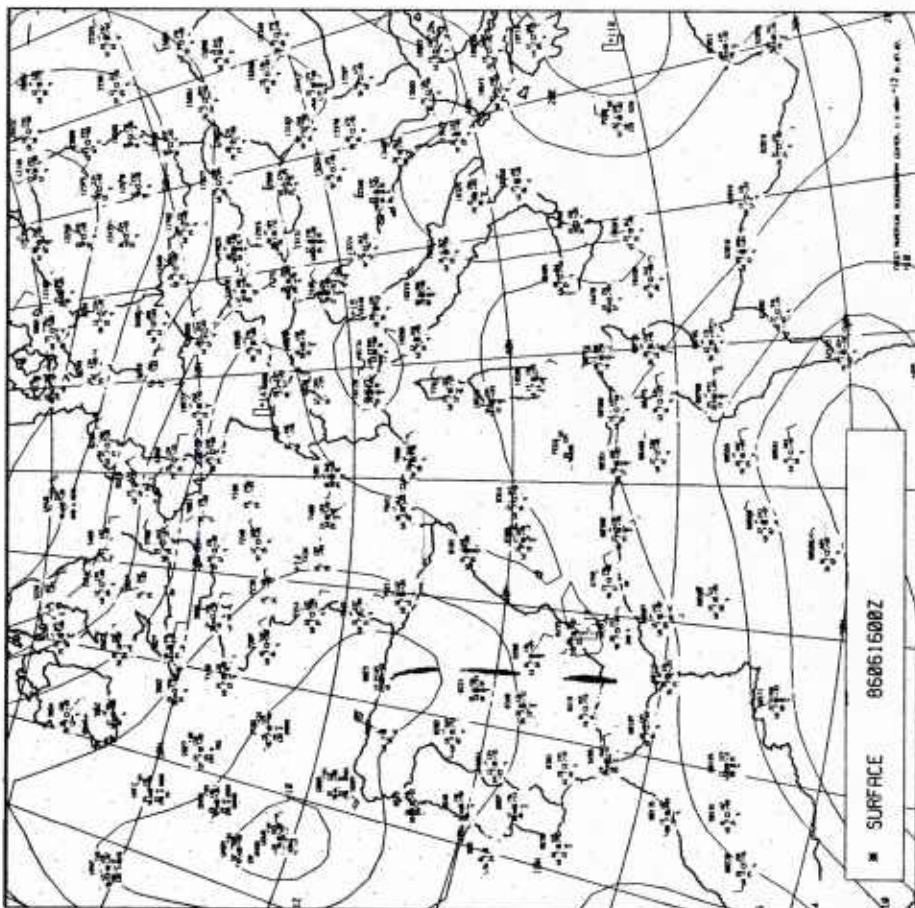


1986 MONTH 6 DAY 15 TIME 1155 GMT (NORTH) CH. VIS 2
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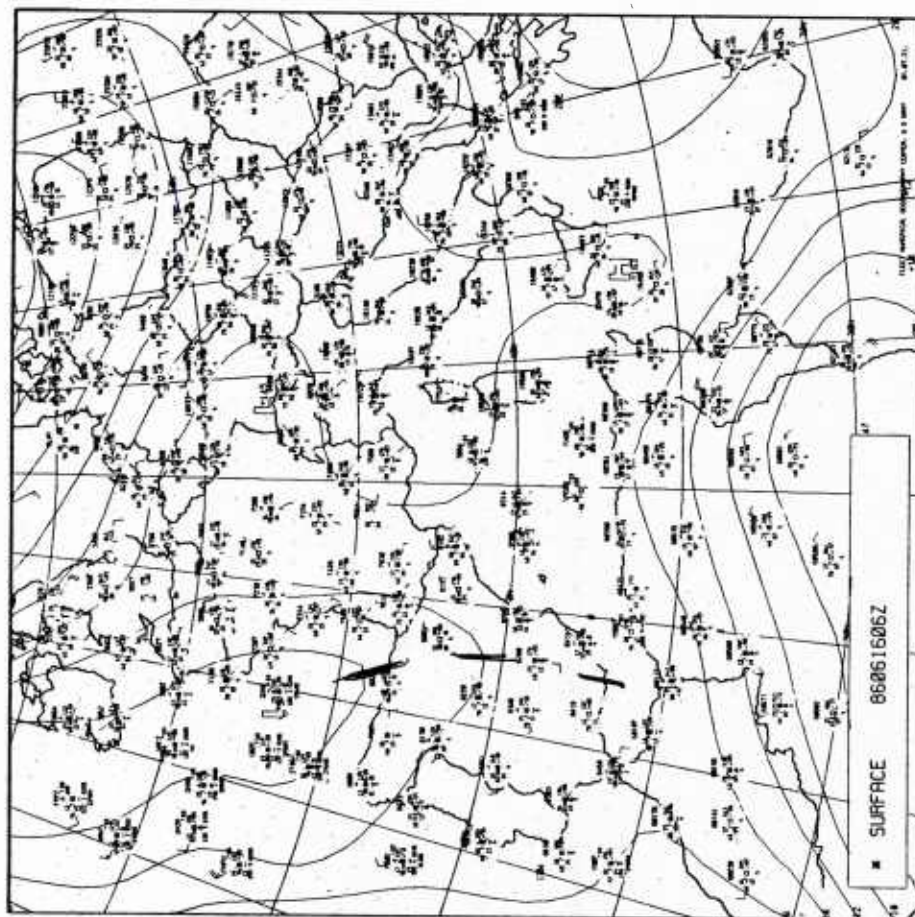


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FOR THIS DATE AND TIME

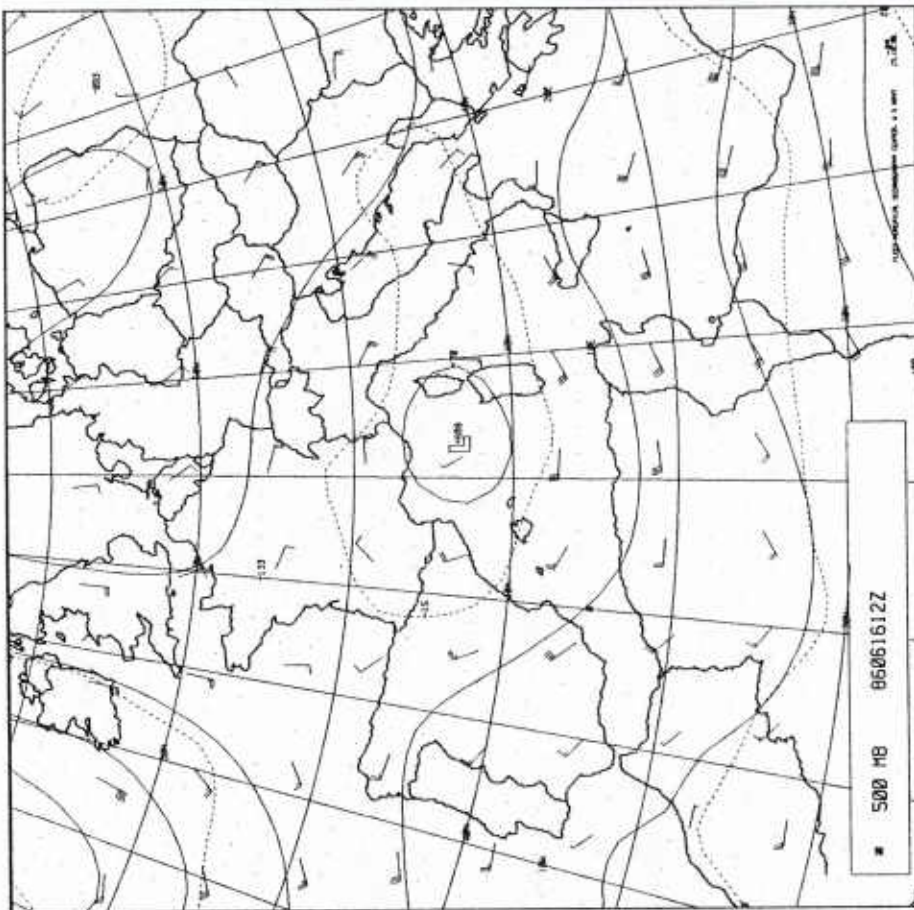




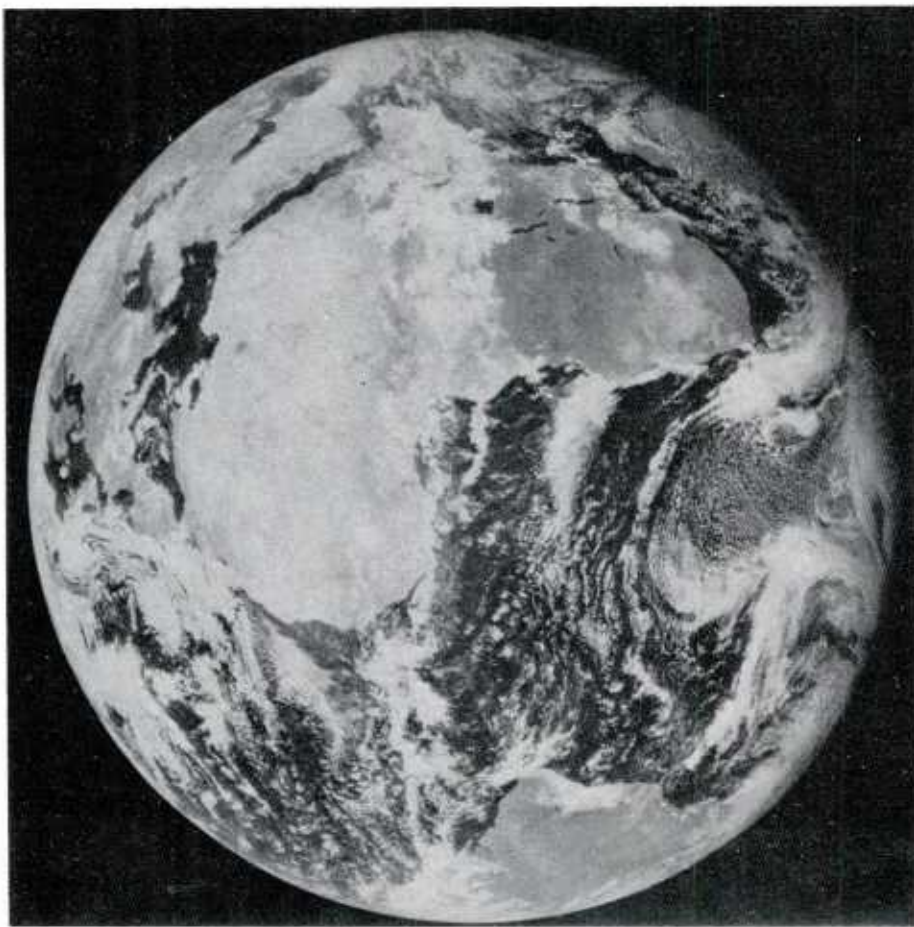
Sc and Cu are reported in the northern West Med while Cu and Ci are over North African coastal stations. Winds are light and variable throughout the area.



Visibility ranges from less than 1 km to 8 km in fog surrounding the Tyrrhenian Sea. Cs and Ci dominate the skies in the central West Med. Wind flow is generally light and variable.

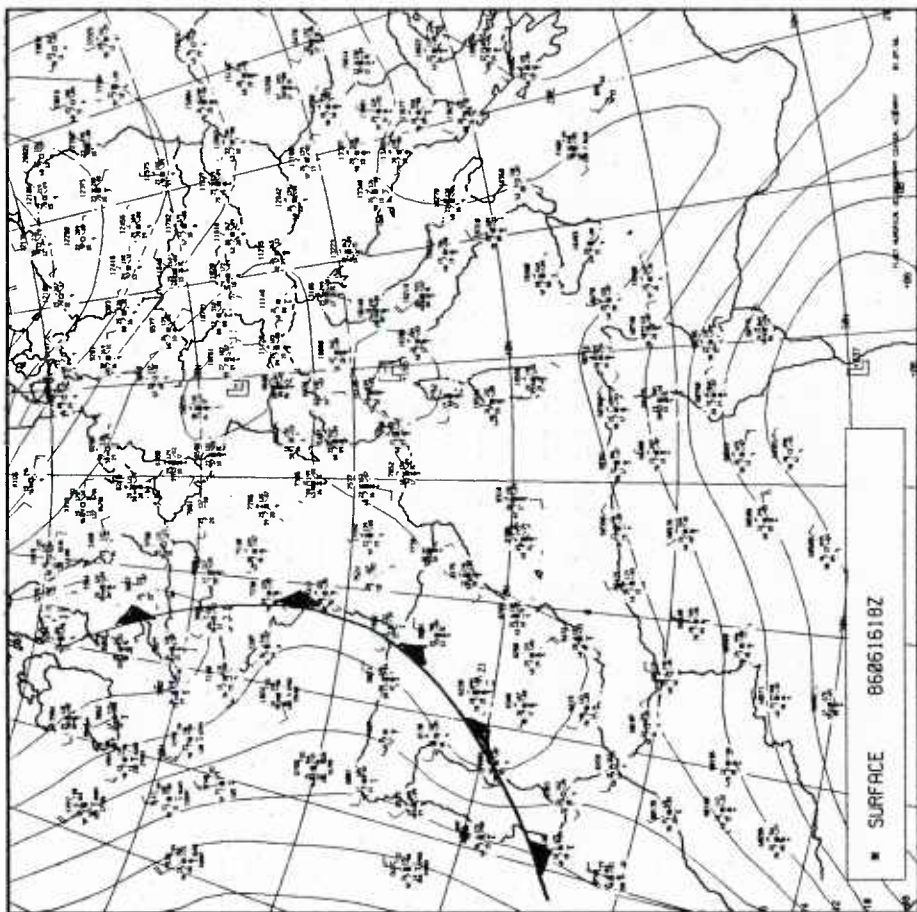
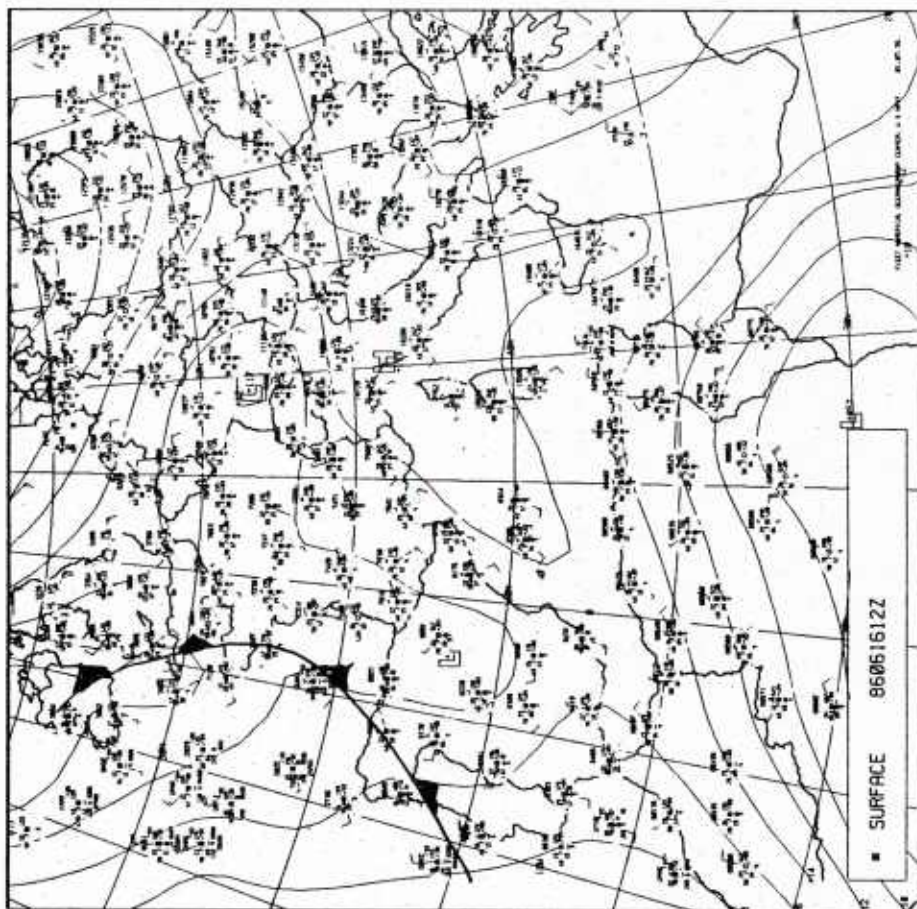


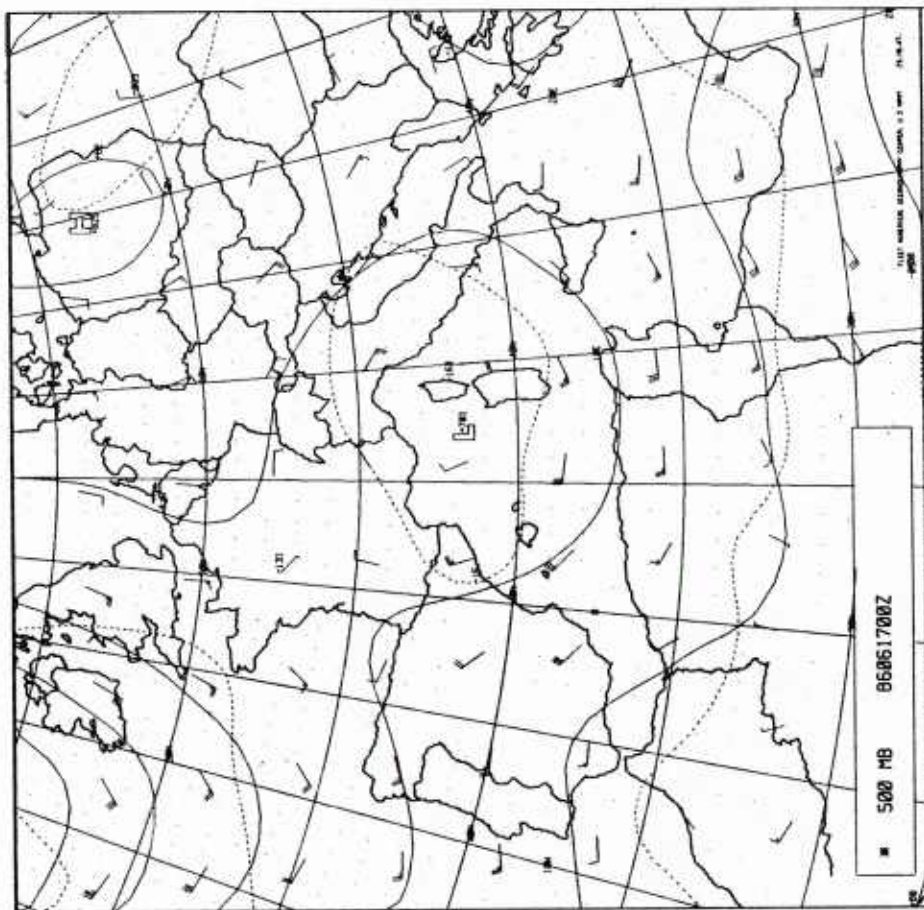
Blocking continues over Europe. The West Med low isohight continues drifting west.



METEOSAT

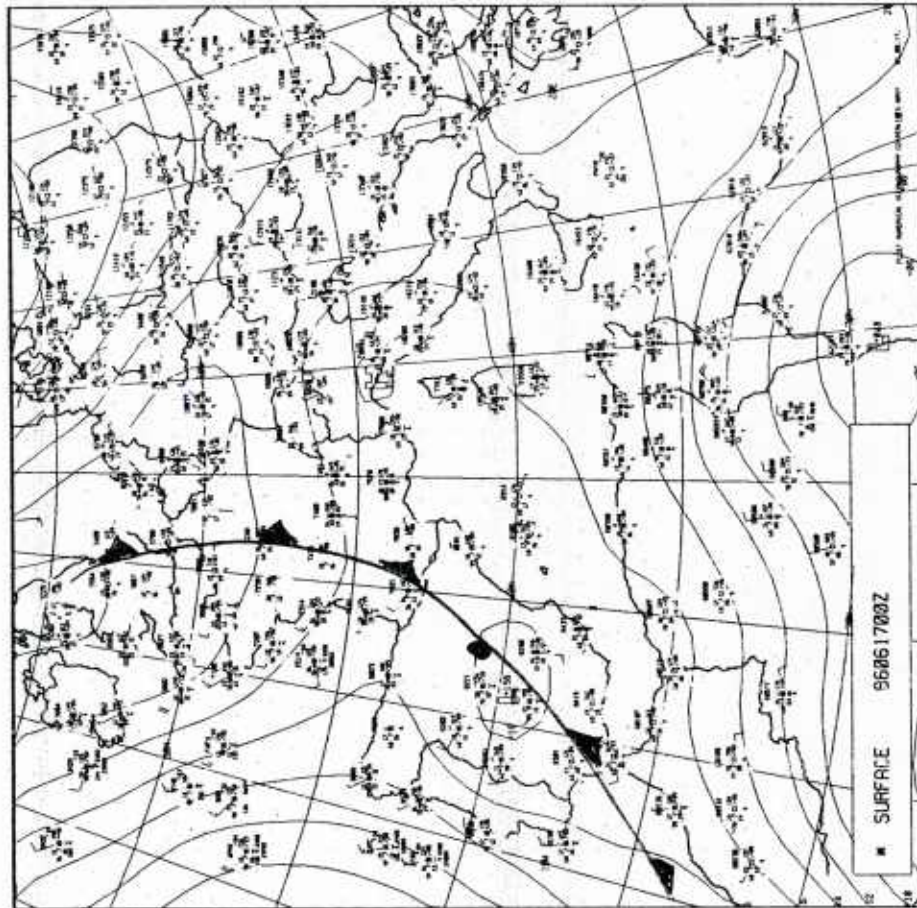
1986 MONTH 6 DAY 16 TIME 1255 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAM DATA SLOT 26 COPYRIGHT - ESA -



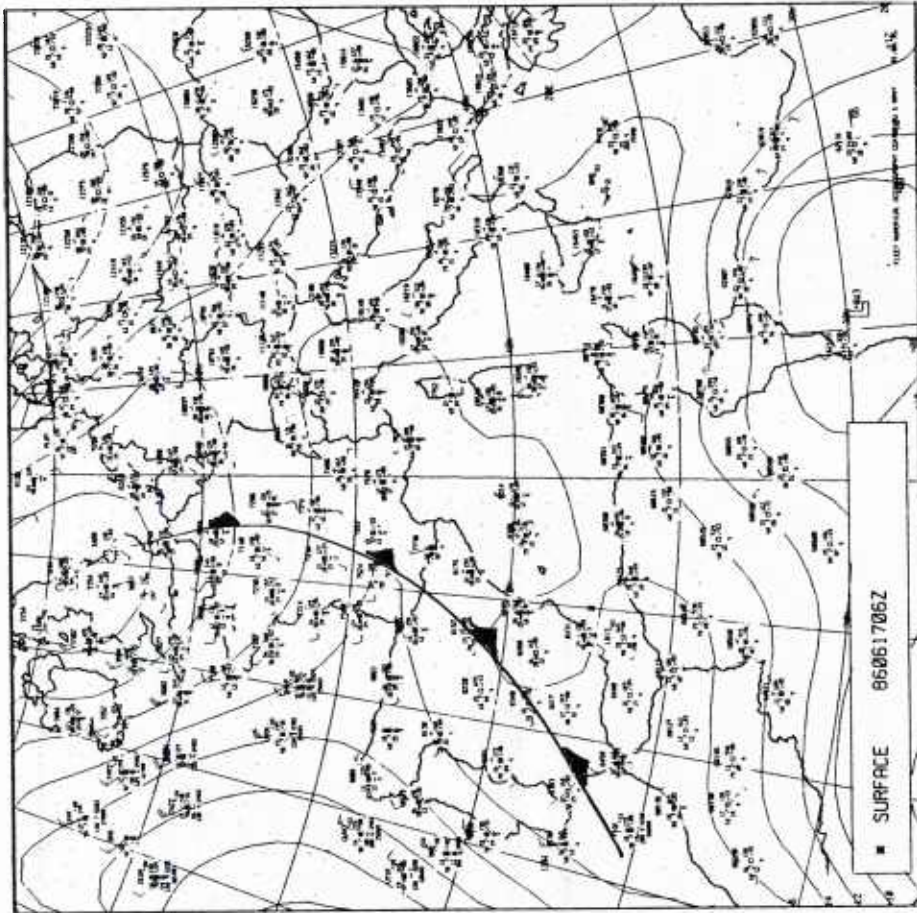


Westward drifting and filling of the West Med low isohight continues. The block has become OMEGA shape with the high isohight over central Europe.

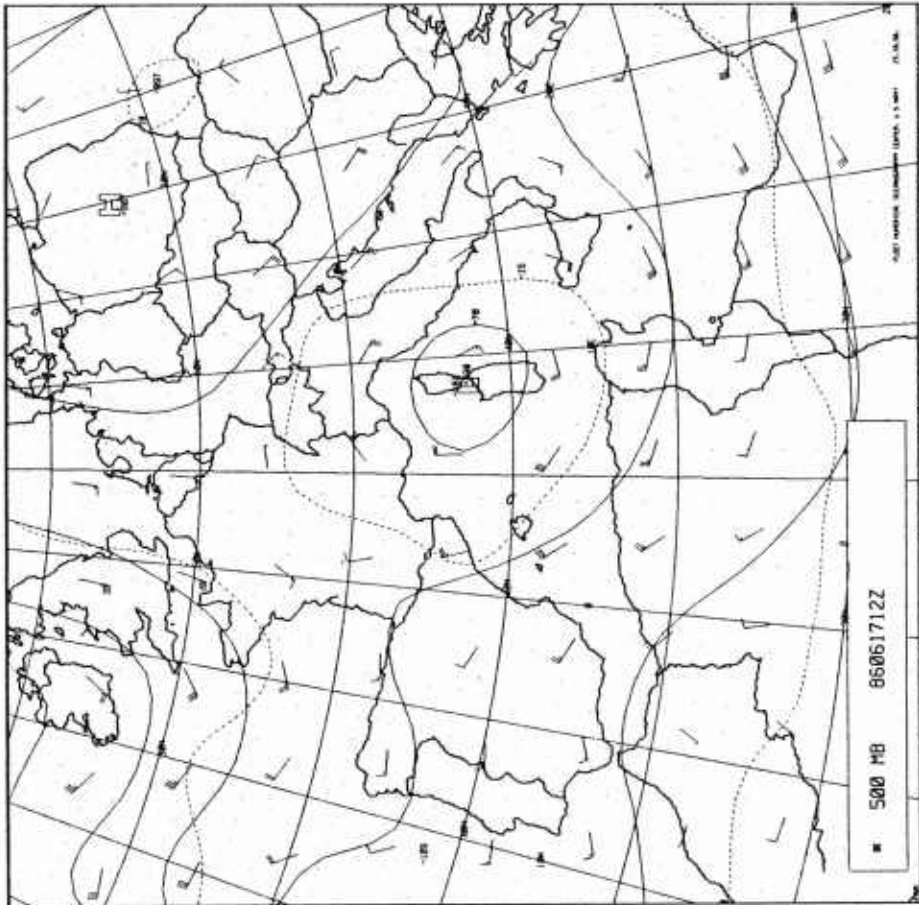
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FOR THIS DATE AND TIME



Flat high pressure still dominates the West Med. Double layers of Ac and some Ci are reported around the Tyrrhenian Sea. Elsewhere only Ci is reported. A front extending from a weak low has moved into Spain.

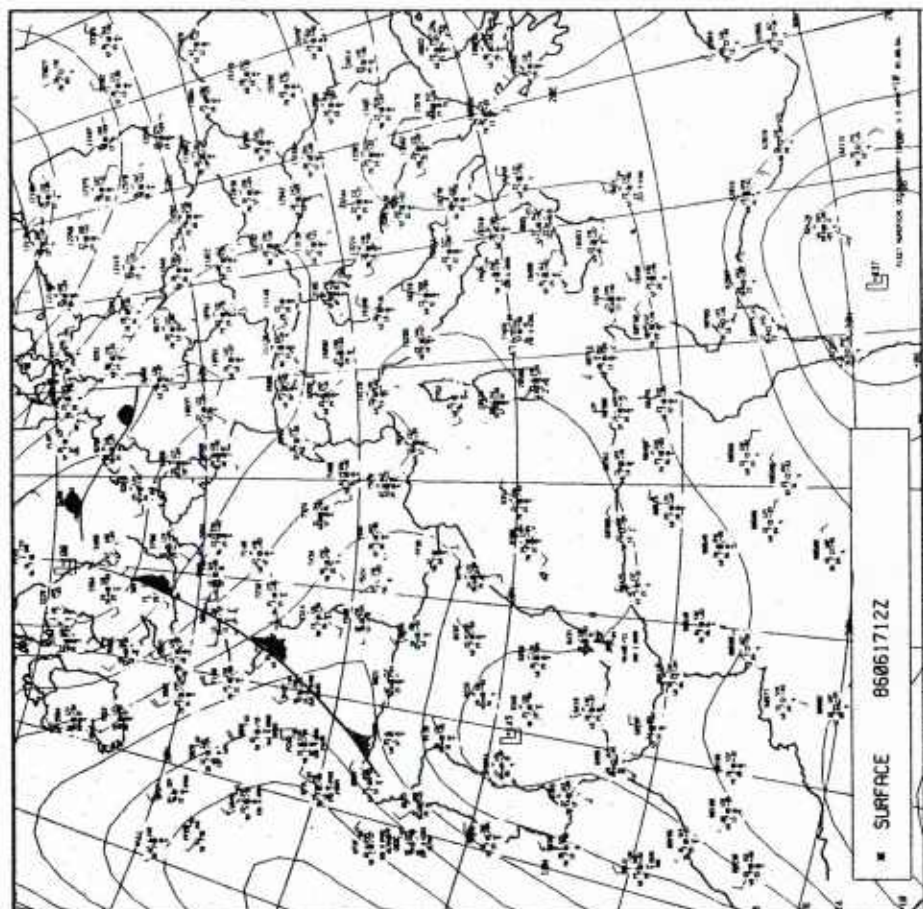


Light and variable winds prevail throughout the West Med. Cu, thin Ac, and Ci are being reported.

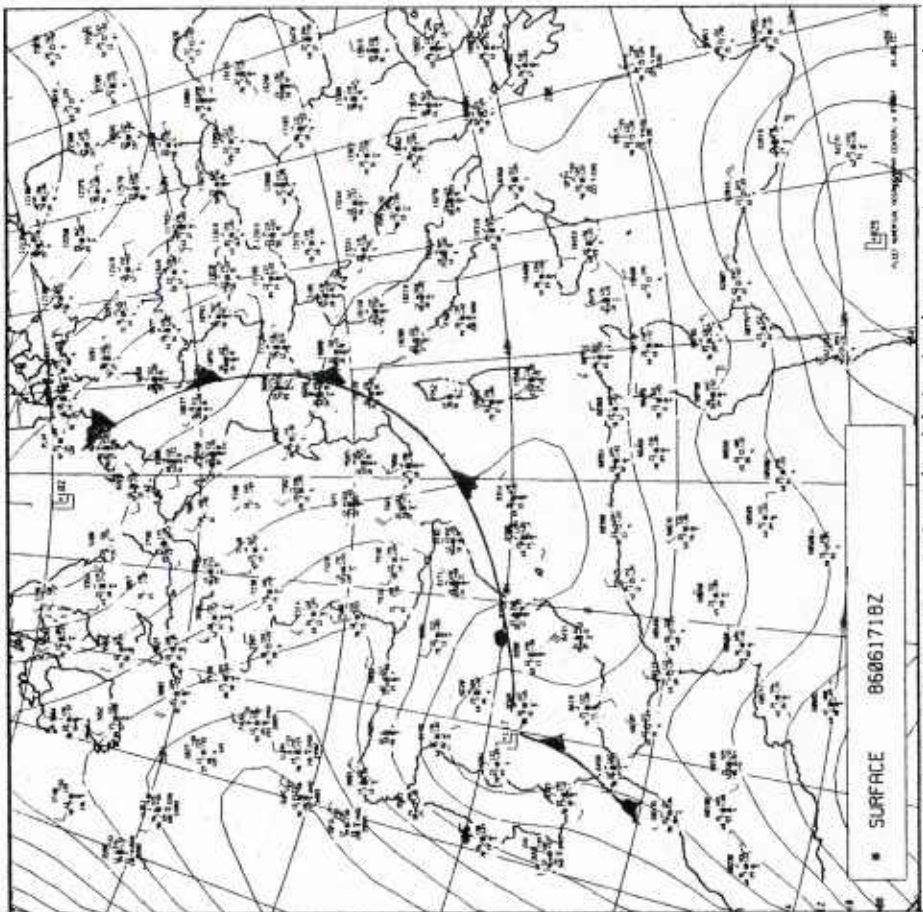


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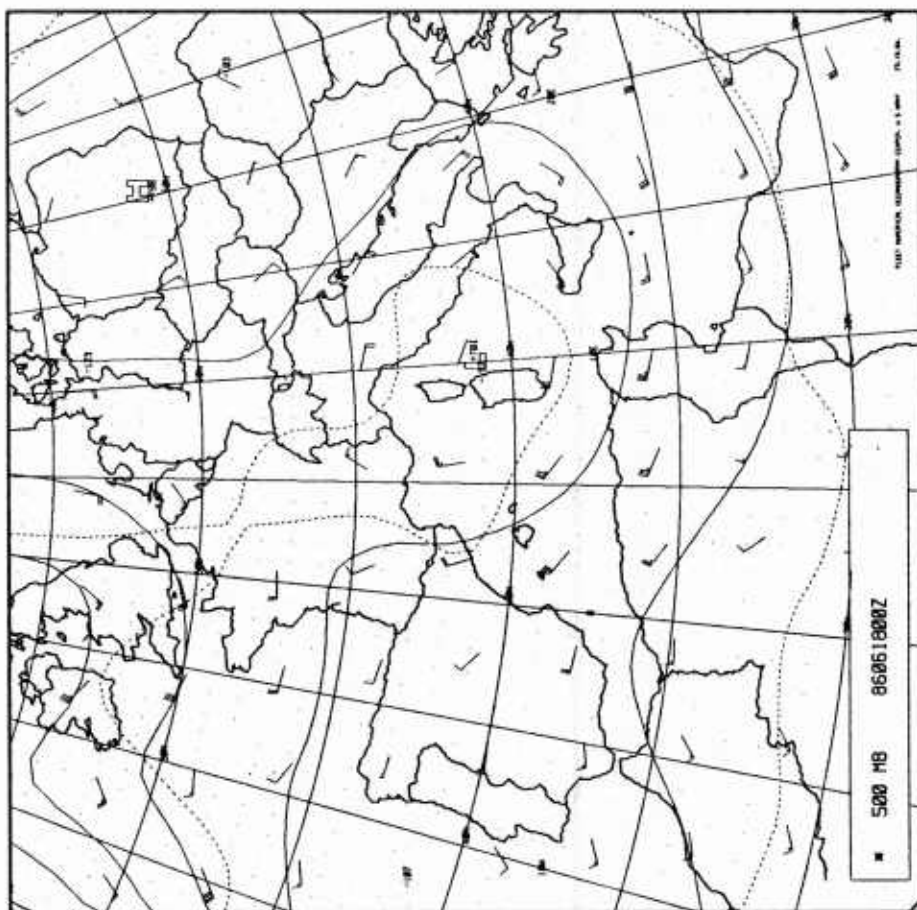
1986 MONTH 6 DAY 17 TIME 1155 GMT (NORTH) CH. VIS 2
 HORIZONTAL SCAN PAN DATA SLOT 24 COP/FIGHT - ESA



Weak ridging covers the West Med. Light and variable winds are being reported throughout the area.

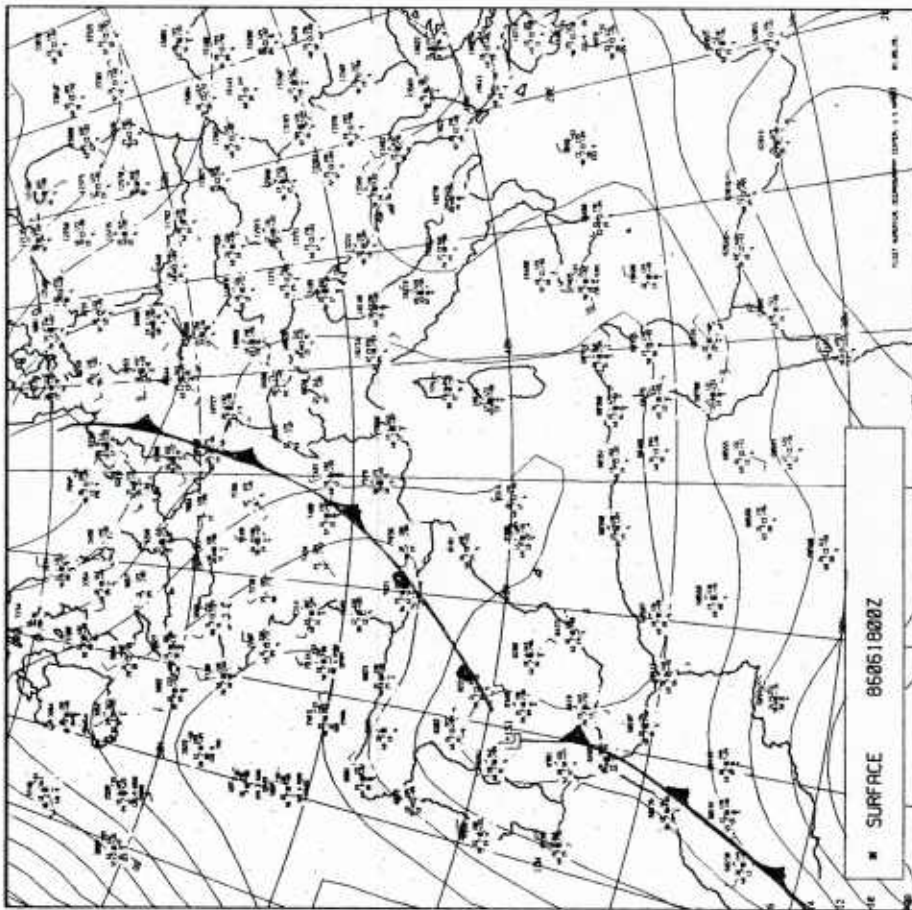


Ridging from the Atlantic high dominates the West Med. Mostly cloudy skies of Sc and Cu are reported by Tyrrhenian Sea coastal stations. A cold front is approaching the Strait of Gibraltar from the west.

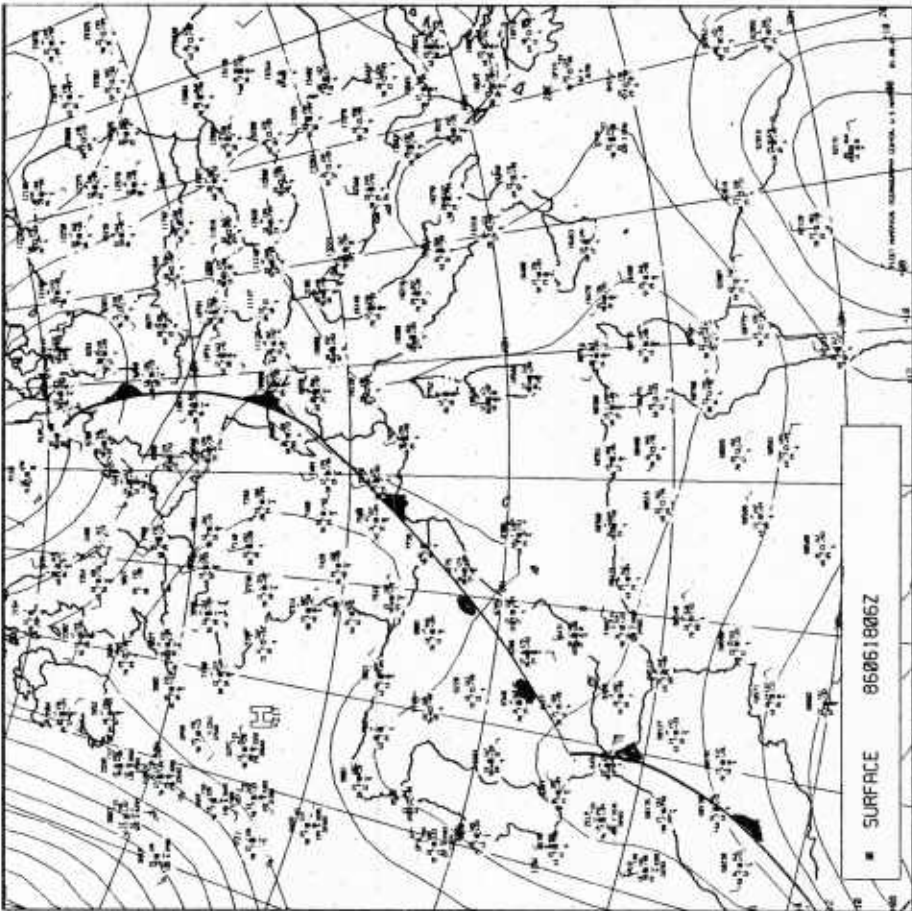


Blocking is the main feature over Europe and the West Med.

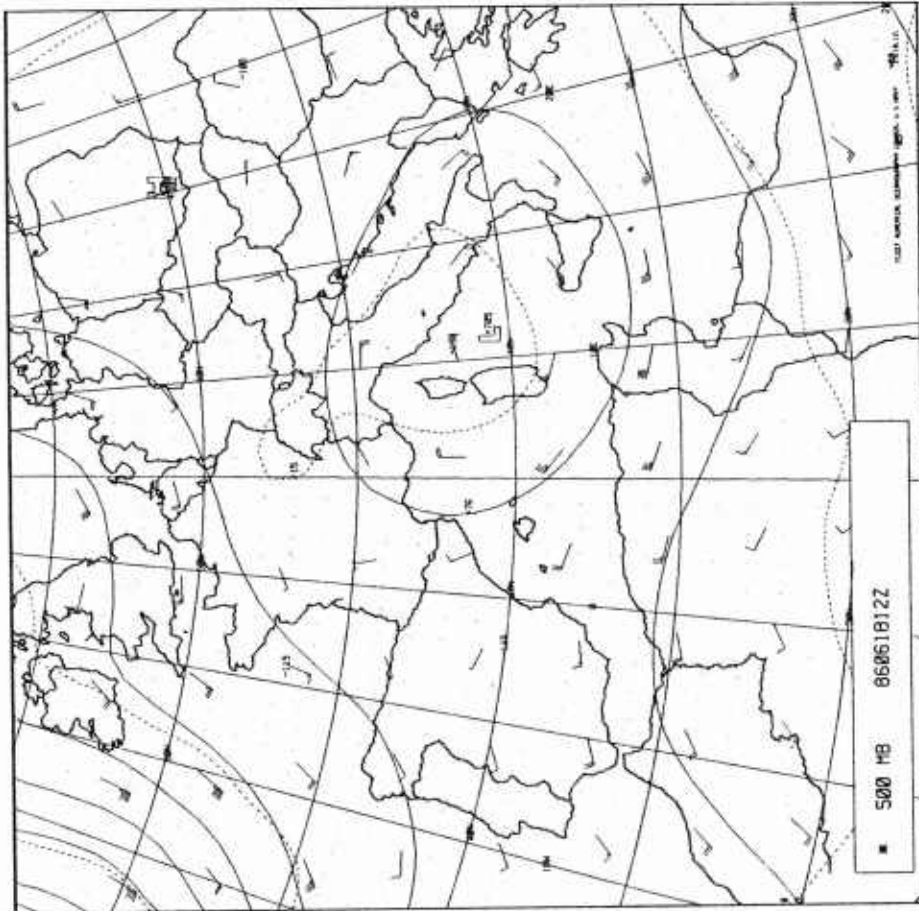
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FOR THIS DATE AND TIME



Ridging dominates the West Med. A cold front is entering the Alboran Sea. Elsewhere, Ci and Ac are being reported.



Activity is weak along the front bordering the West Med. Fog with visibility ranges from 2-6 km are reported by Tyrrhenian Sea coastal stations.

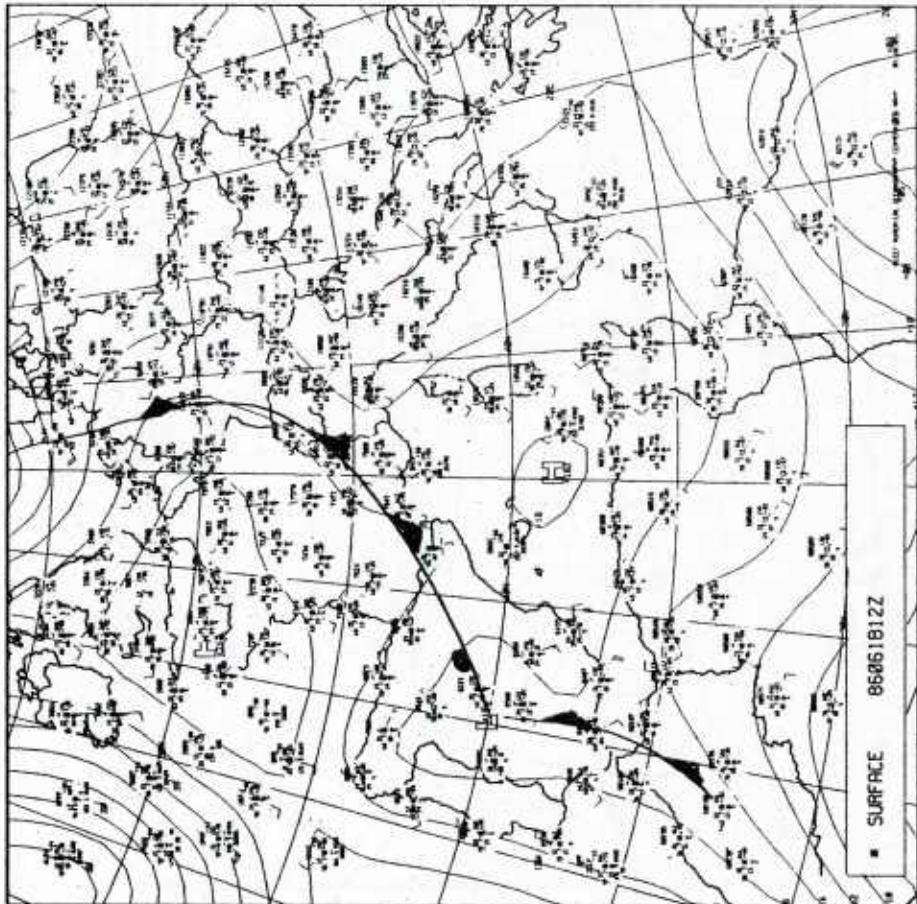


A low isotherm over the Atlantic moves east as the block over Europe weakens. Cyclonic flow continues over the West Med.

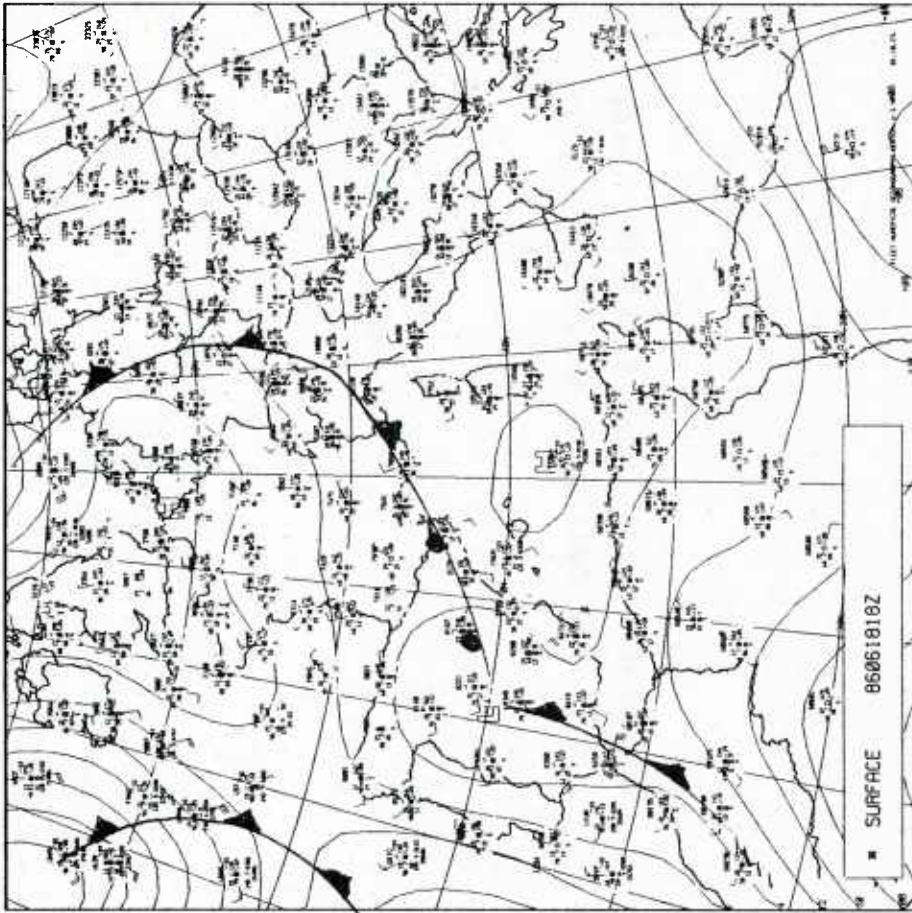


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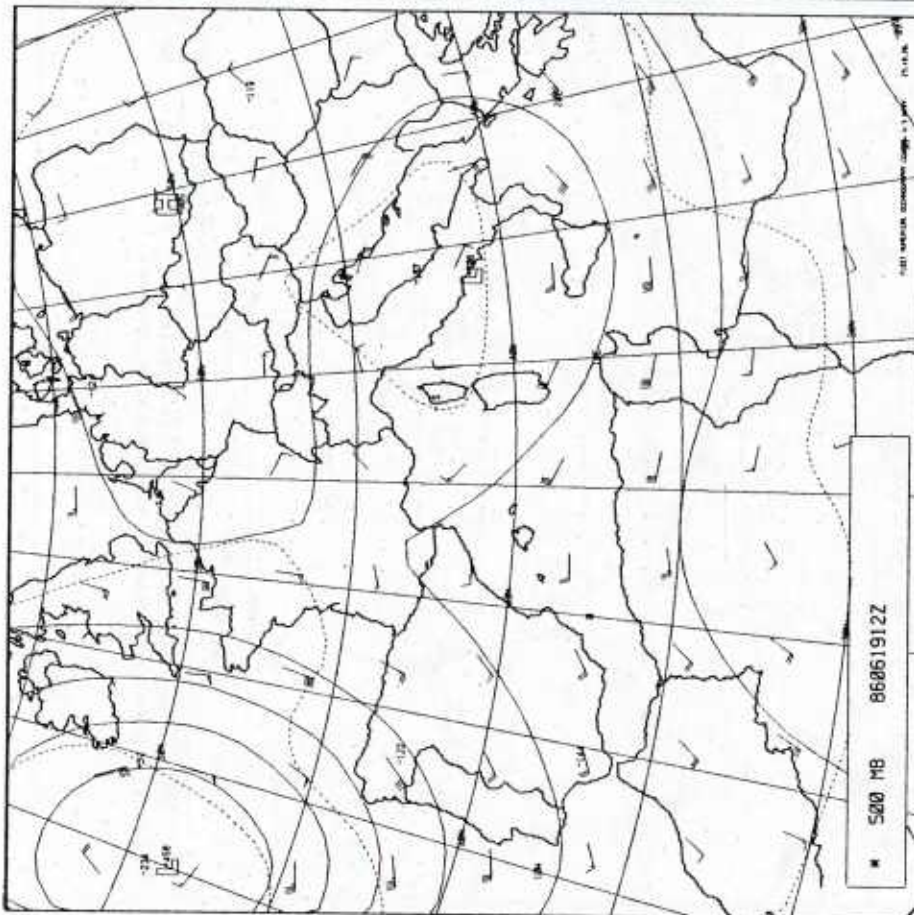
1986 MONTH 6 DAY 18 TIME 1155 GMT (NORTH) CH. VIS. 2
NOMINAL SCAN/RAW DATA SLOT 24 COPYRIGHT - ESA



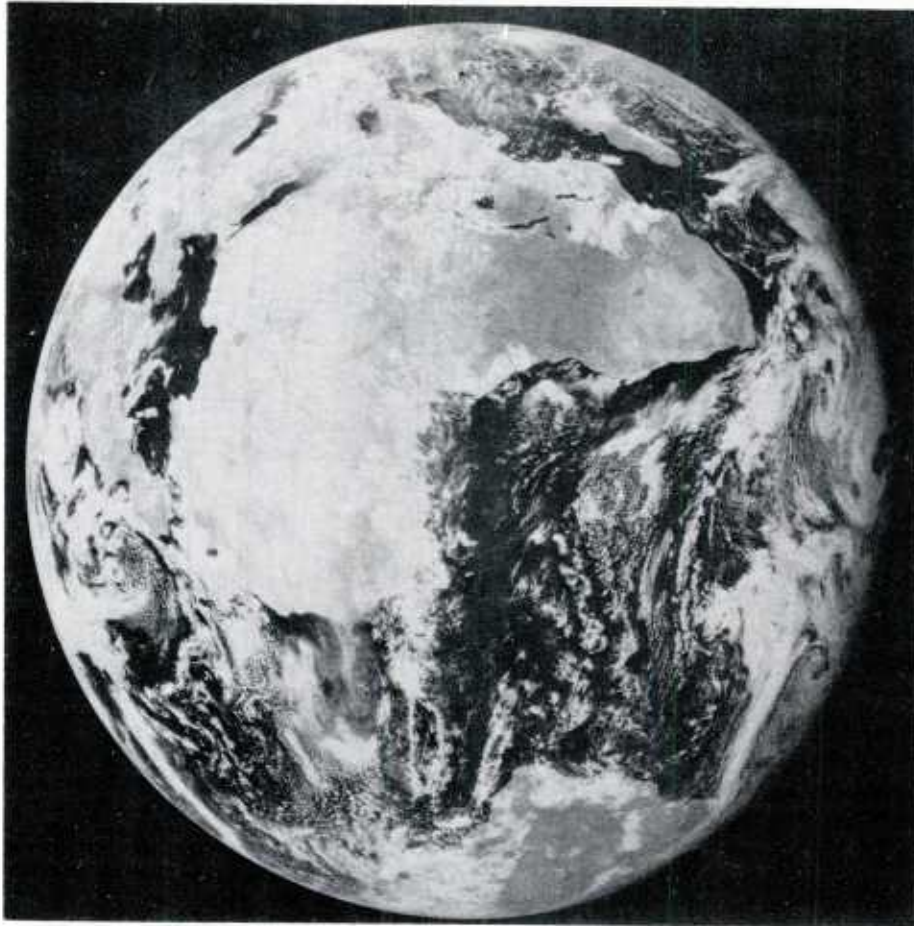
A high pressure cell has developed in the West Med. Cu is being reported by North African coastal stations.



The West Med high weakens but remains dominate. Ci and Cu are reported in the northern sector.

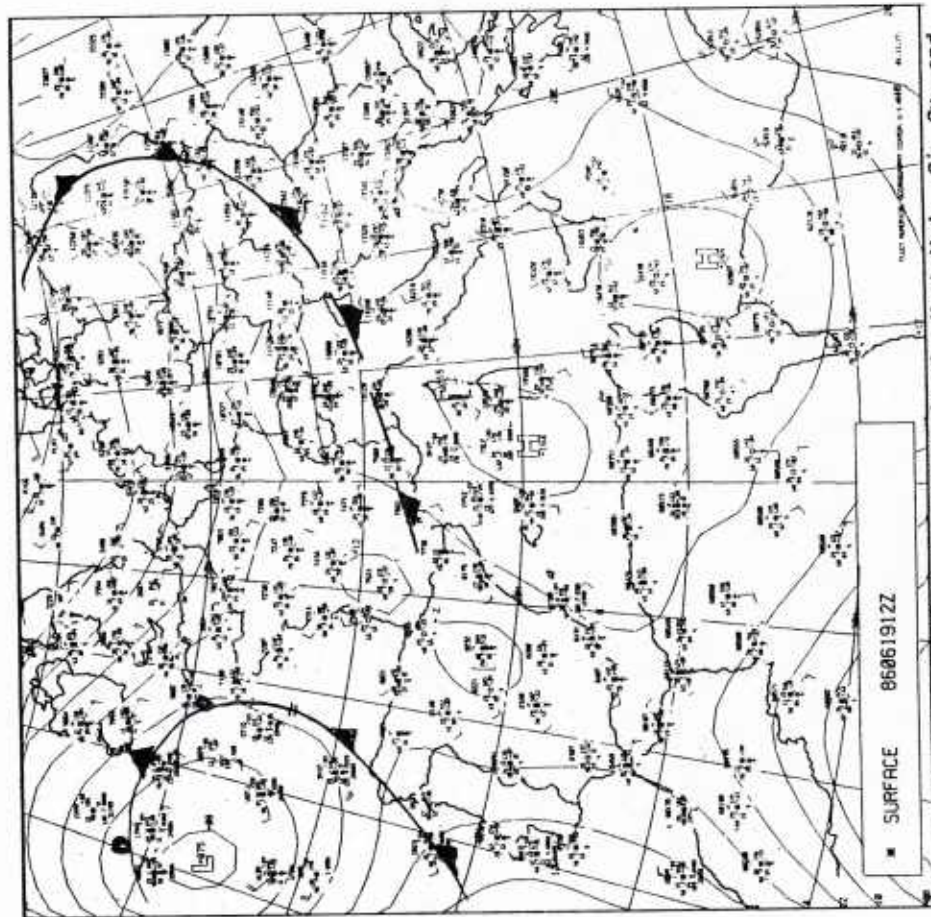


The block over Europe continues to weaken and move east bringing west-northwest winds to the West Med.

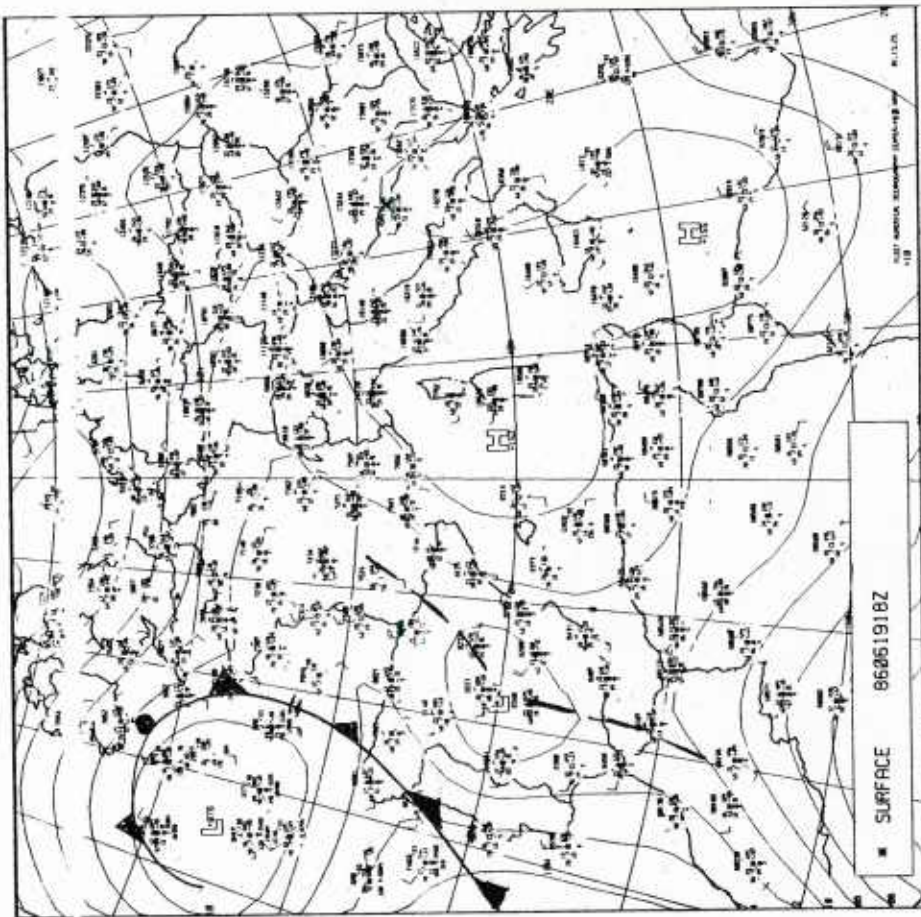


METEOSAT

1986 MONTH 6 DAY 19 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN PAN DATA SLOT 24 COPYRIGHT - ESA -

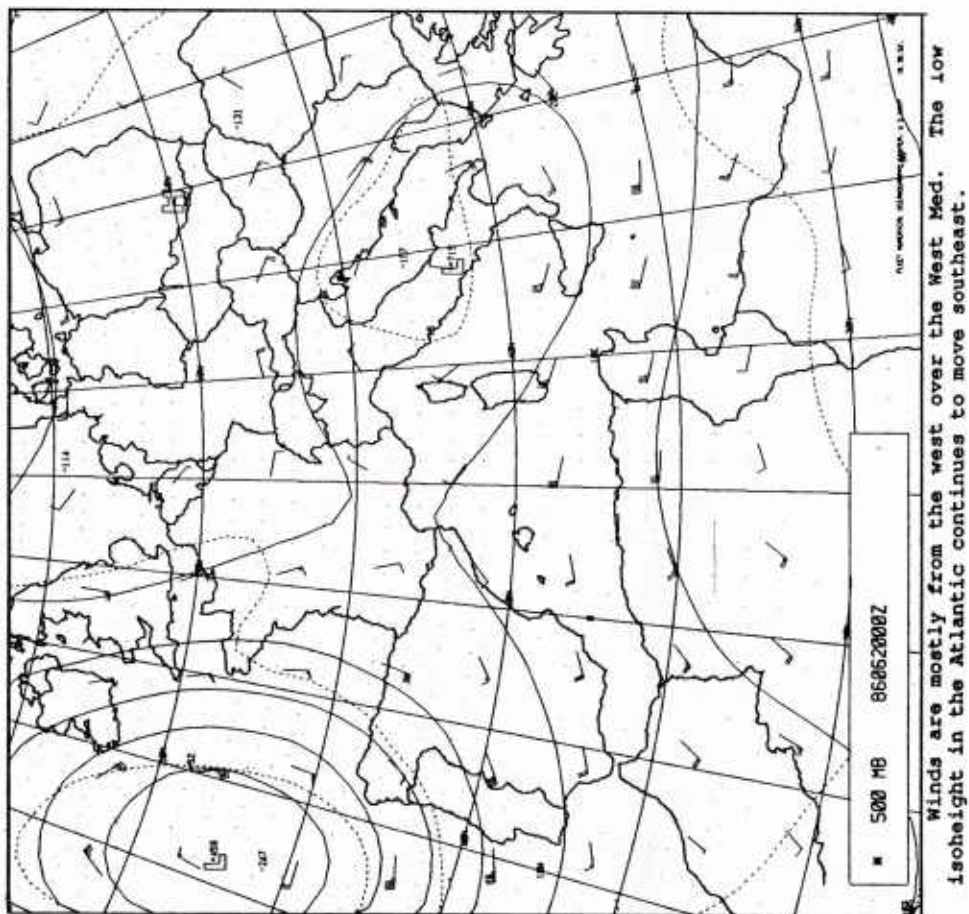


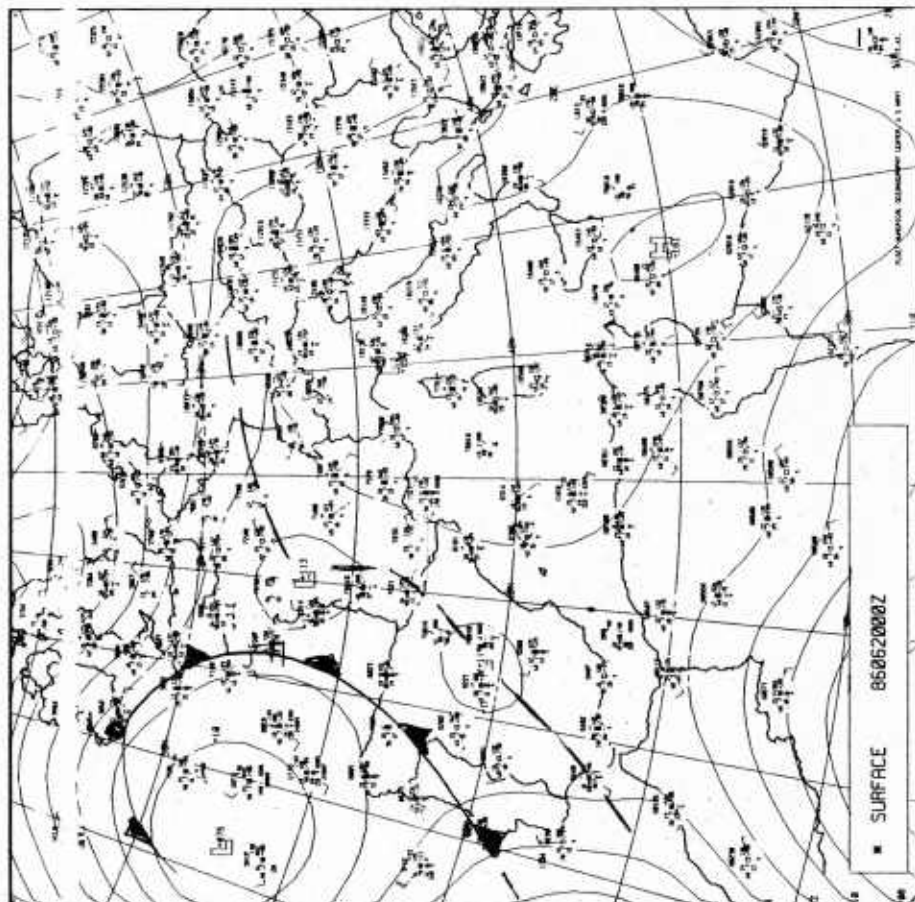
A double cell high is evident in the West Med. Ci, Cu, and Sc are reported from the Alboran Sea to the Sicilian Channel. Light fog with 7 km visibility continues in the channel. The Atlantic low drifts southeast as its associated cold front enters Spain.



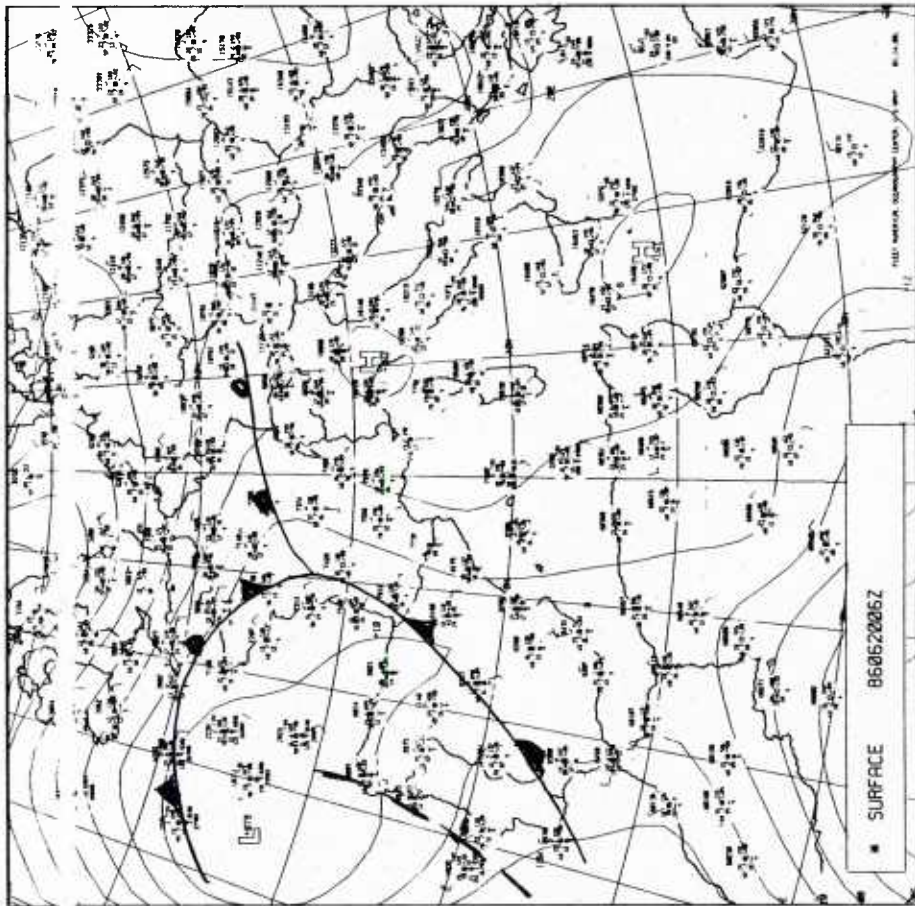
Weak high pressure cells dominate the West Med. Winds are light and variable throughout the area. Numerous thunderstorms are being reported along southern France and into Genoa, Italy.

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FOR THIS DATE AND TIME

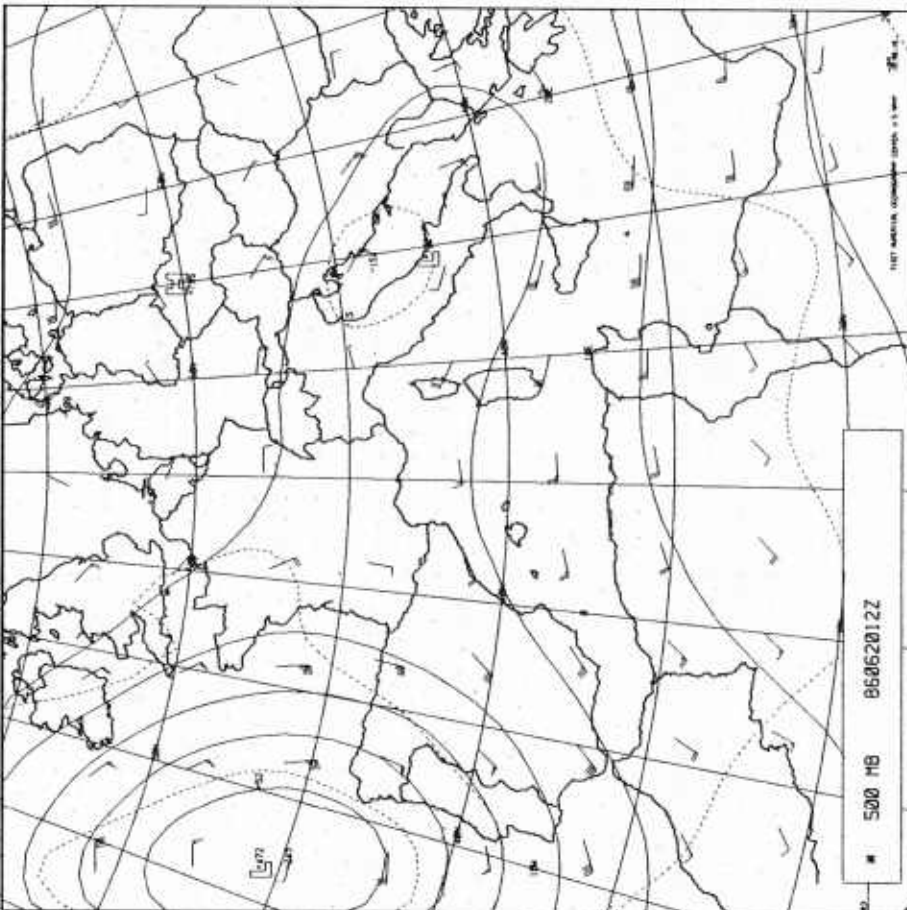


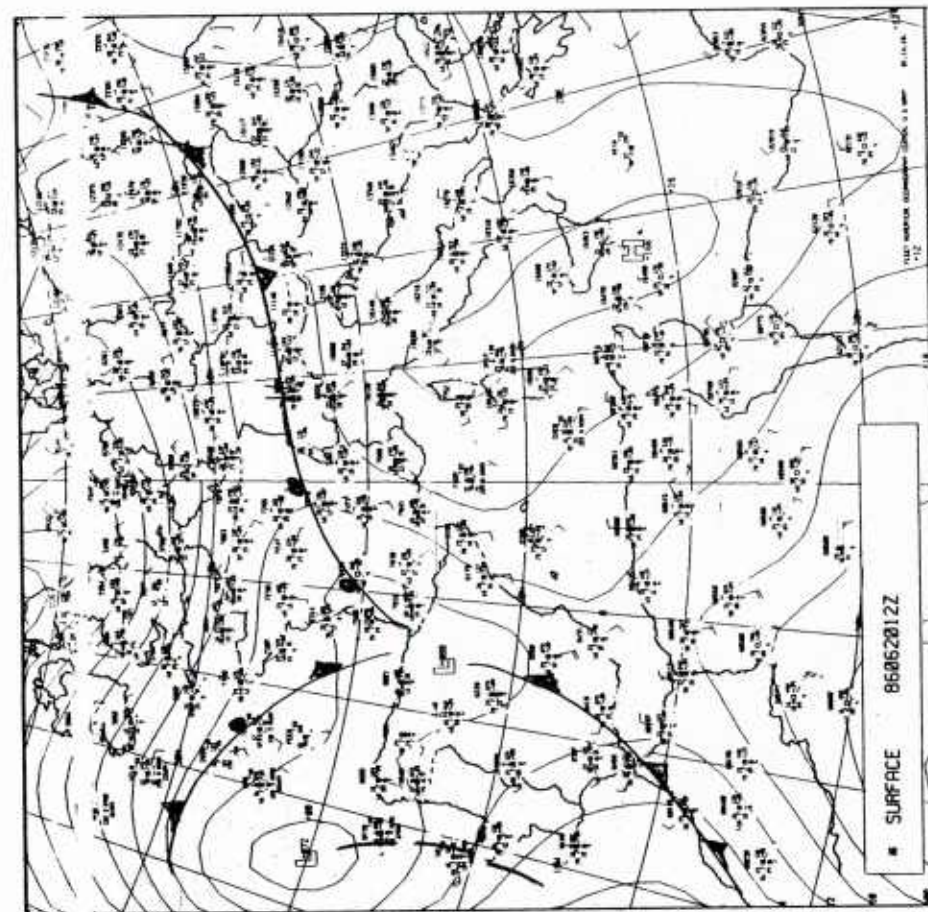


The wind report from the ship at 39N 005E is suspect as surrounding stations have calm winds. Heavy fog with visibilities of less than 1 km are reported along the Tyrrhenian Sea Italian coast. Mostly clear skies are reported through the rest of the West Med.

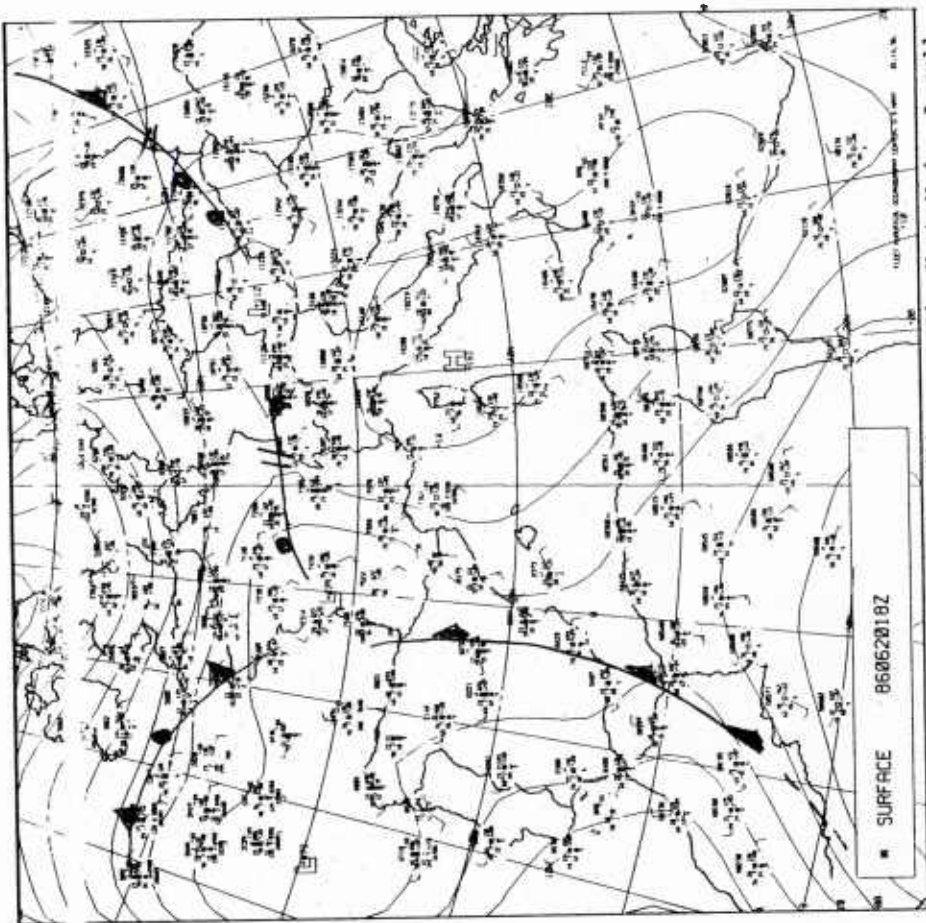


Fog is reported around the Tyrrhenian Sea as the high over the West Med becomes quasi-stationary. Ci, As, and St are prevalent in the area.



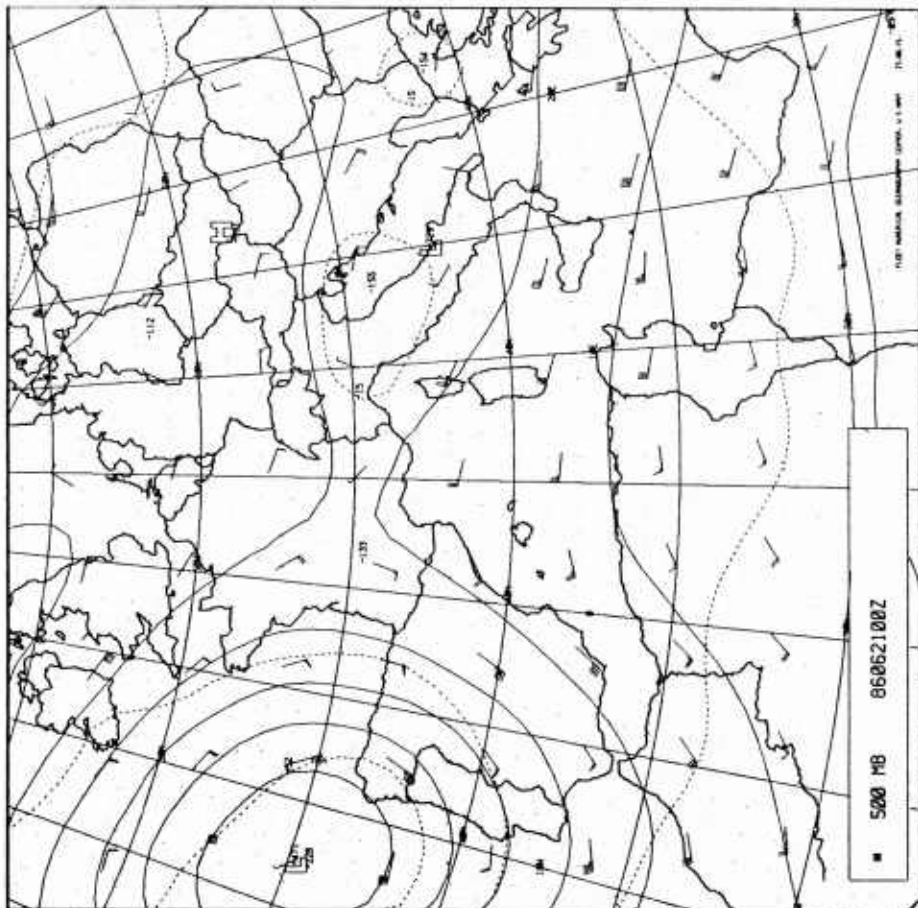


Light anticyclonic flow covers the West Med as the high remains quasi-stationary. AC and CI are reported throughout the area.

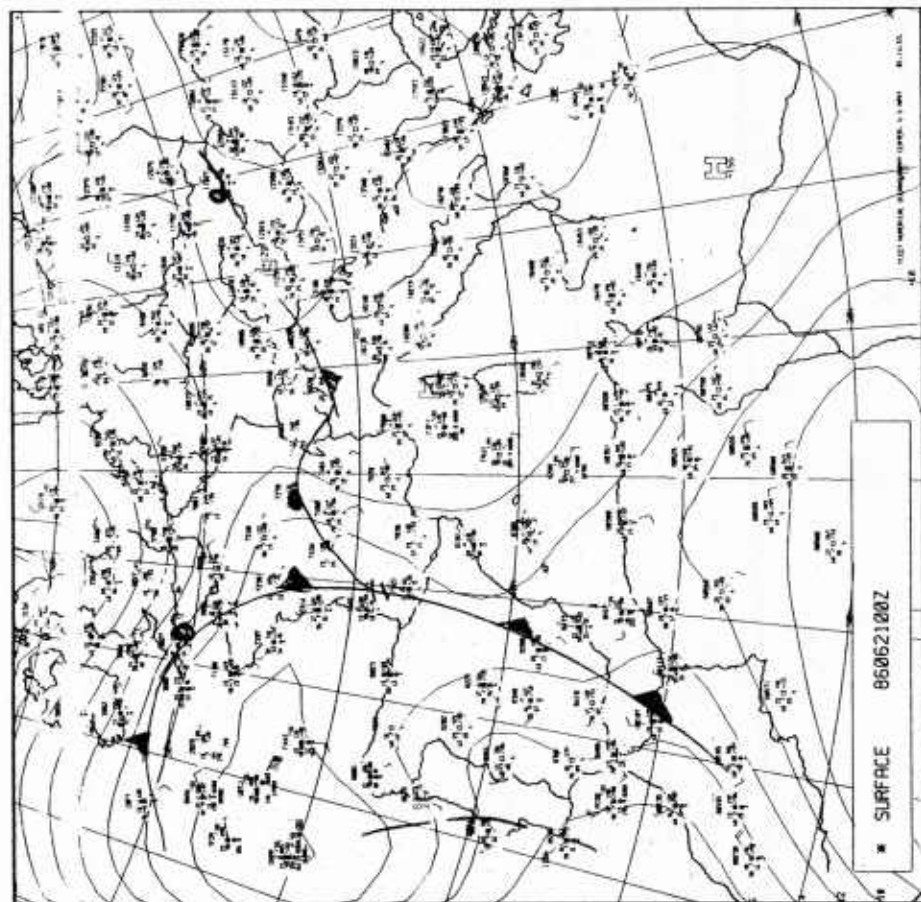


A quasi-stationary high still covers the West Med. A cull exists in the Alboran Sea as southeast wind on the west side of the high meets the northwest winds leaving the Iberian peninsula.

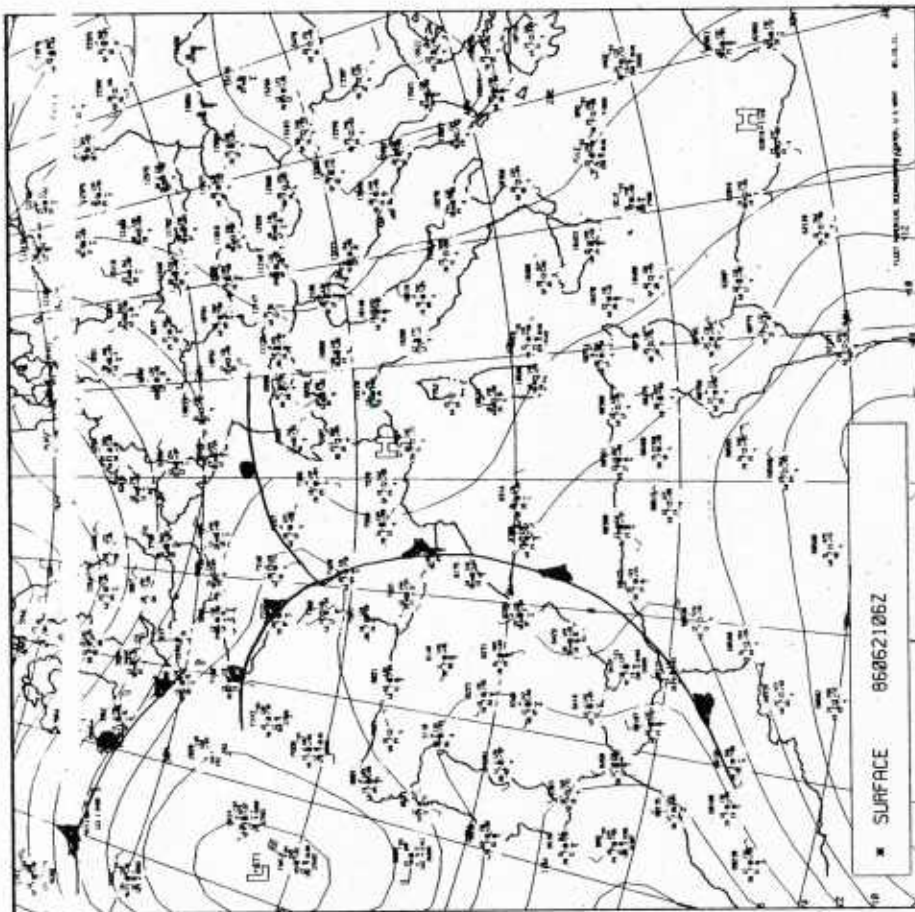
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FOR THIS DATE AND TIME



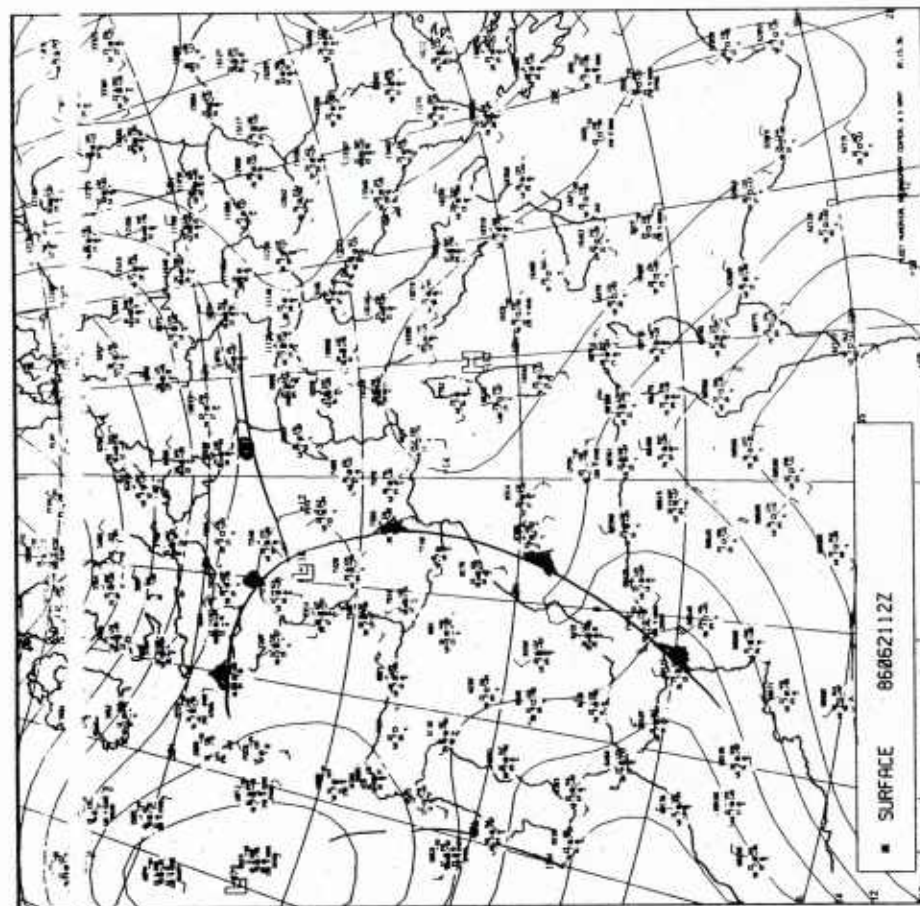
Westerly winds cover the West Med. The low isohelght in the Atlantic stalls east of the Bay of Biscay. A 50 kt jet nearly circles the low.



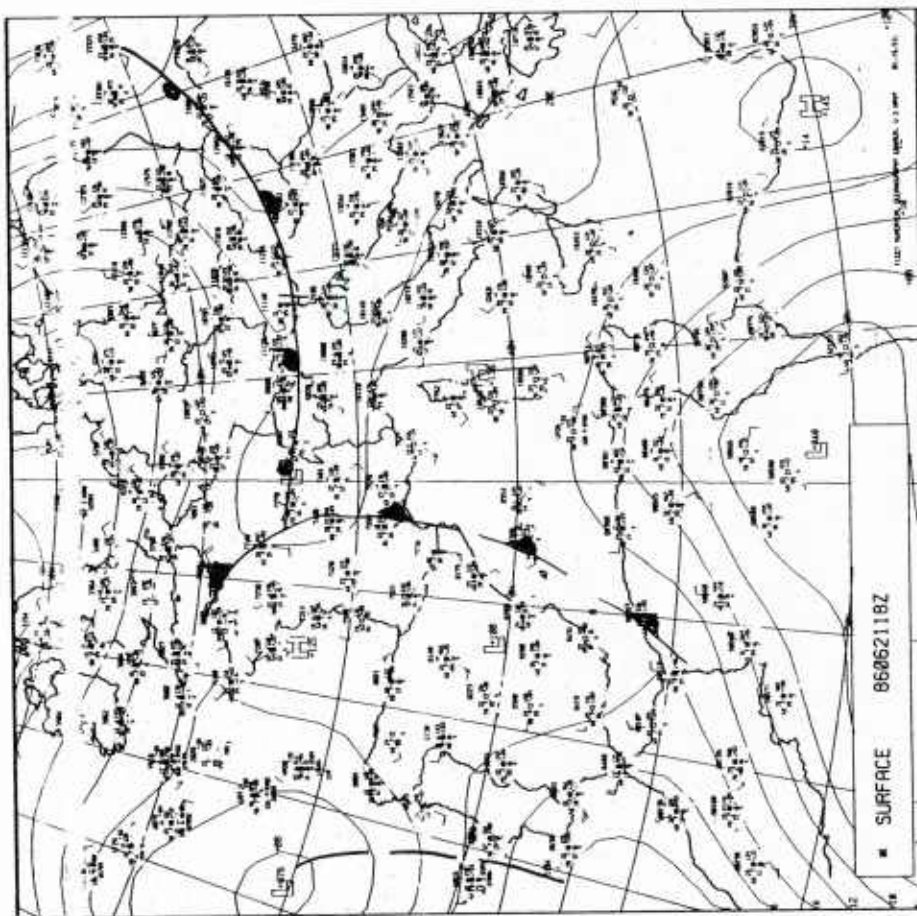
Only Ci and Ac are reported in the West Med as the quasi-stationary high remains dominate. A cull still exists in the eastern Alboran Sea. A cold front is sweeping through the Strait of Gibraltar.



The eastern portion of the area is under a quasi-stationary high while a weak cold front influences the Alboran Sea and the Balearic Islands. Spanish coastal stations report instability aloft in the form of Ac with turrets.

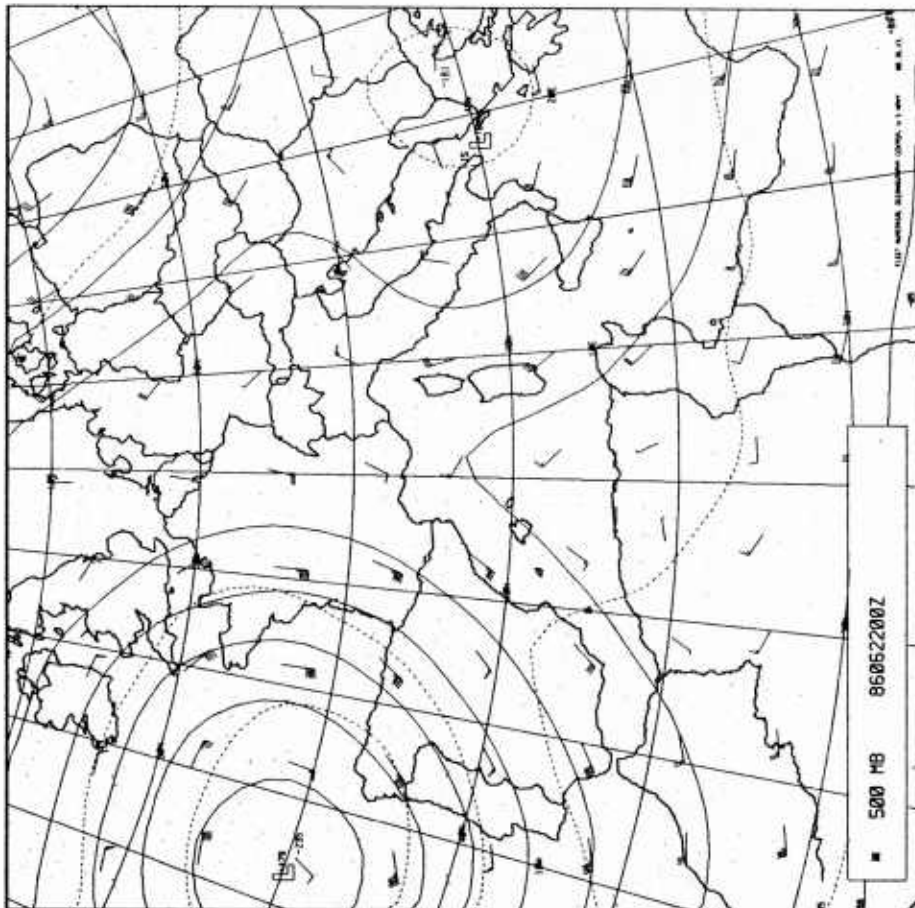


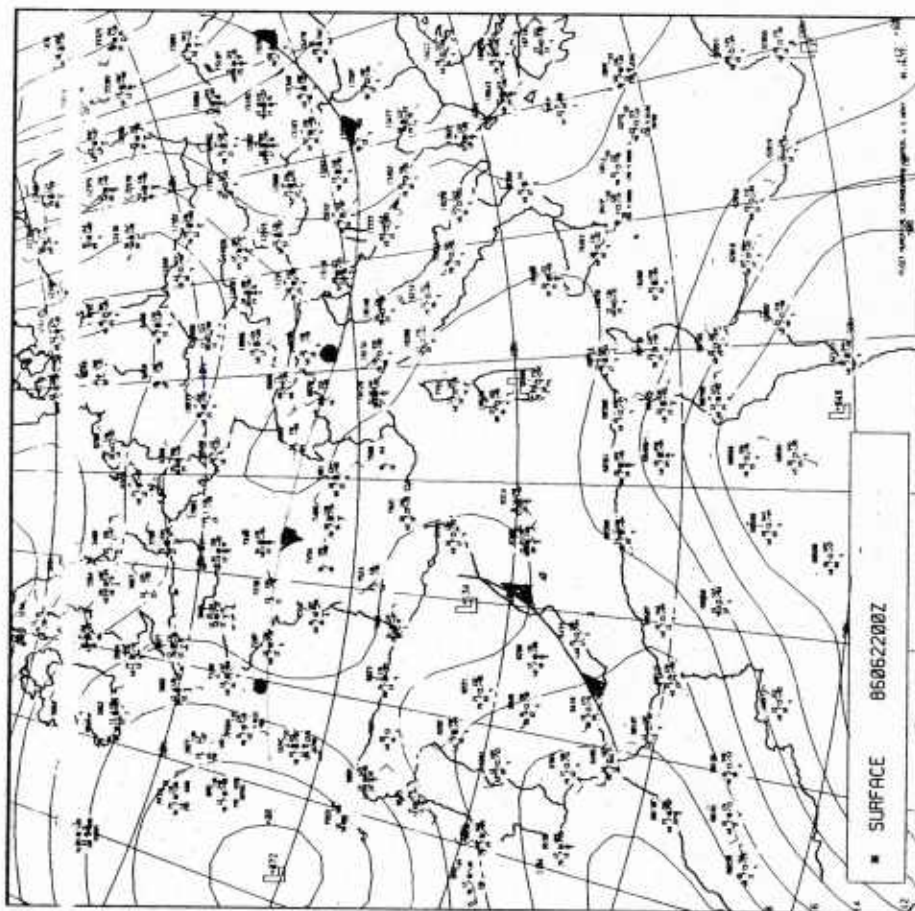
Quasi-stationary high cells cover the eastern part of the area bringing mostly clear skies. The Alboran Sea is still under the influence of a cold front. Cu clouds are reported in this sector.



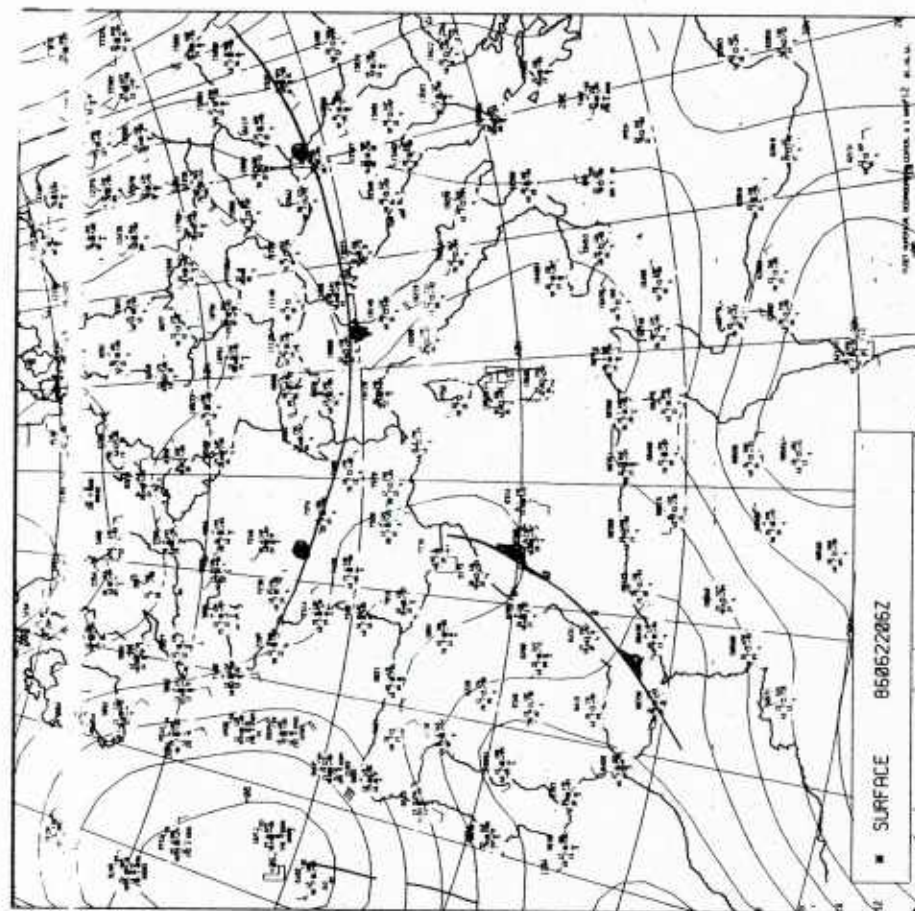
Light and variable winds are reported throughout the West Med. North African stations are cloud covered, experiencing Ci, Ac, and some St.

NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME

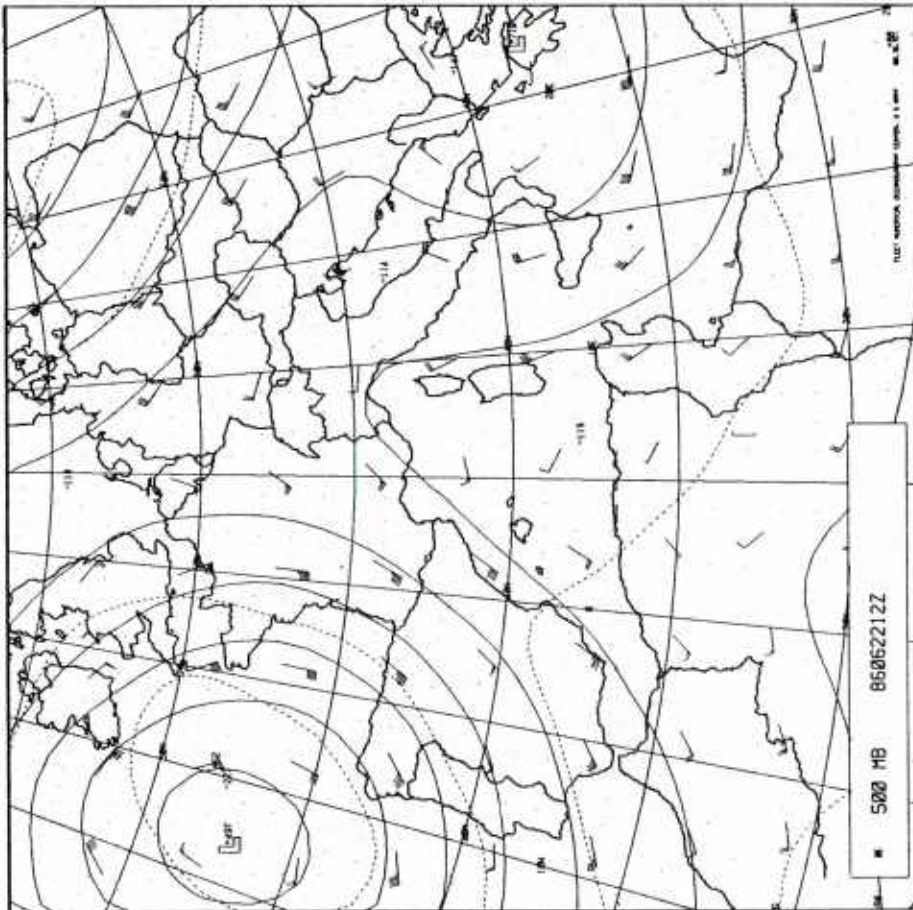




Light fog and 8-10 km visibilities are reported in the Balearic Islands and Sicilian Channel. Clear skies prevail in the northern part of the area while southern West Med stations report thin Ac.



Flat high pressure covers the West Med. Light fog is reported in a line from Valencia, Spain through the Balearic Islands, Sardinia, into Italy. Elsewhere, winds are light and variable with Ac reported by southern stations.

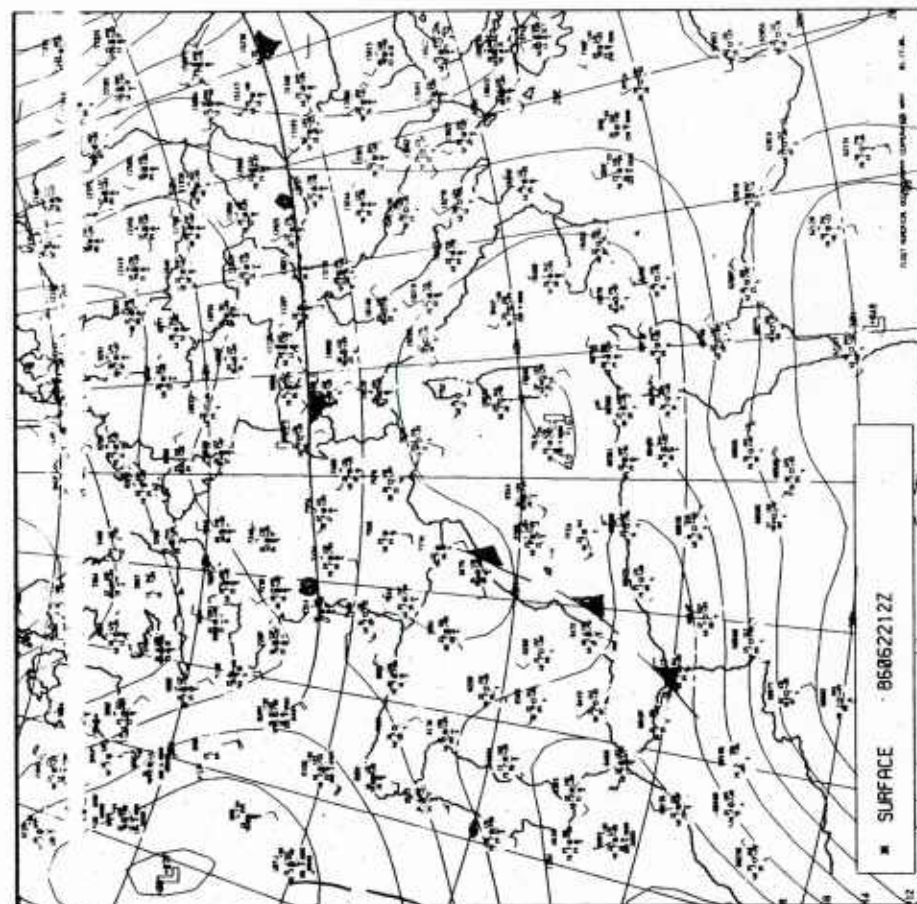


Ridging builds over the West Med. Winds are stronger on the eastern side of the ridge than the west side.

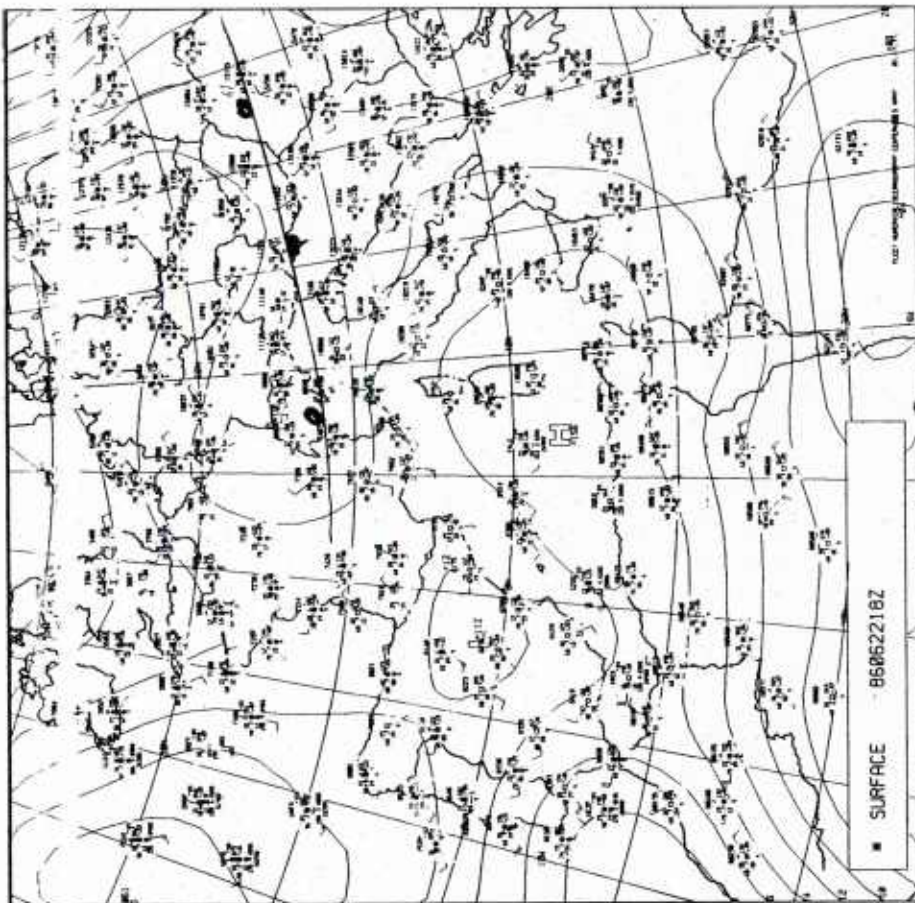


METEOSAT

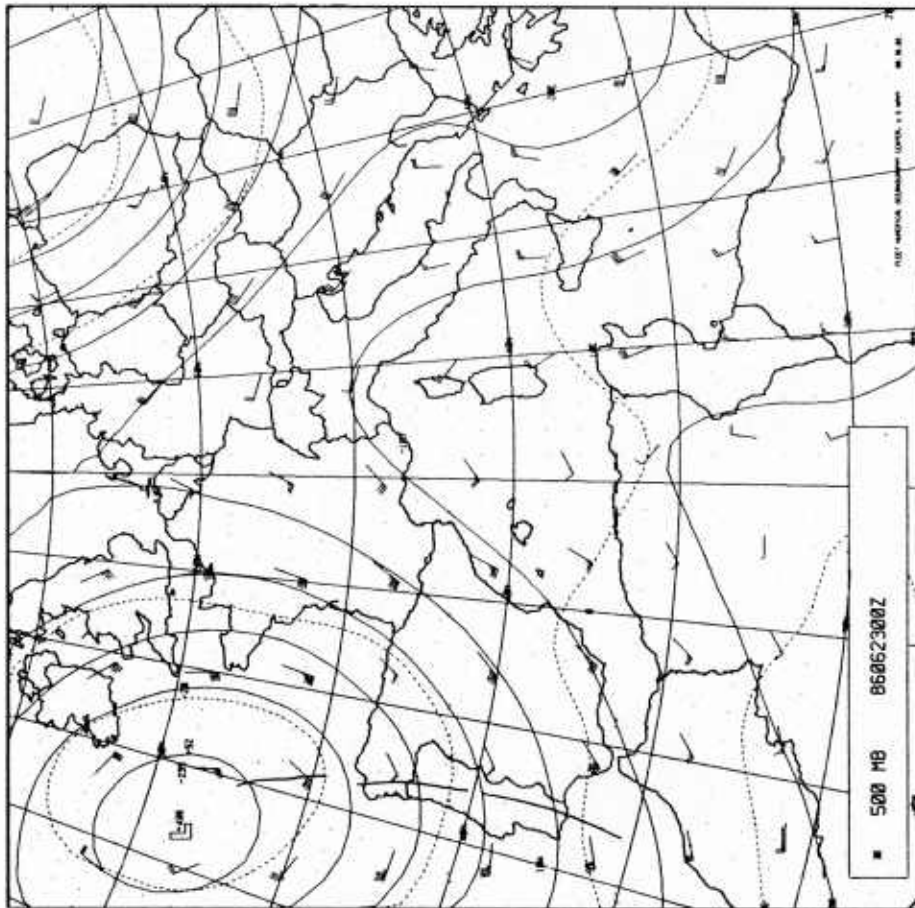
1986 NORTH 6 DAY 22 TIME 1155 GMT NORTH CH. VIS 2
NOMINAL SCAT RAW DATA SLOT 24 COPYRIGHT - ESA



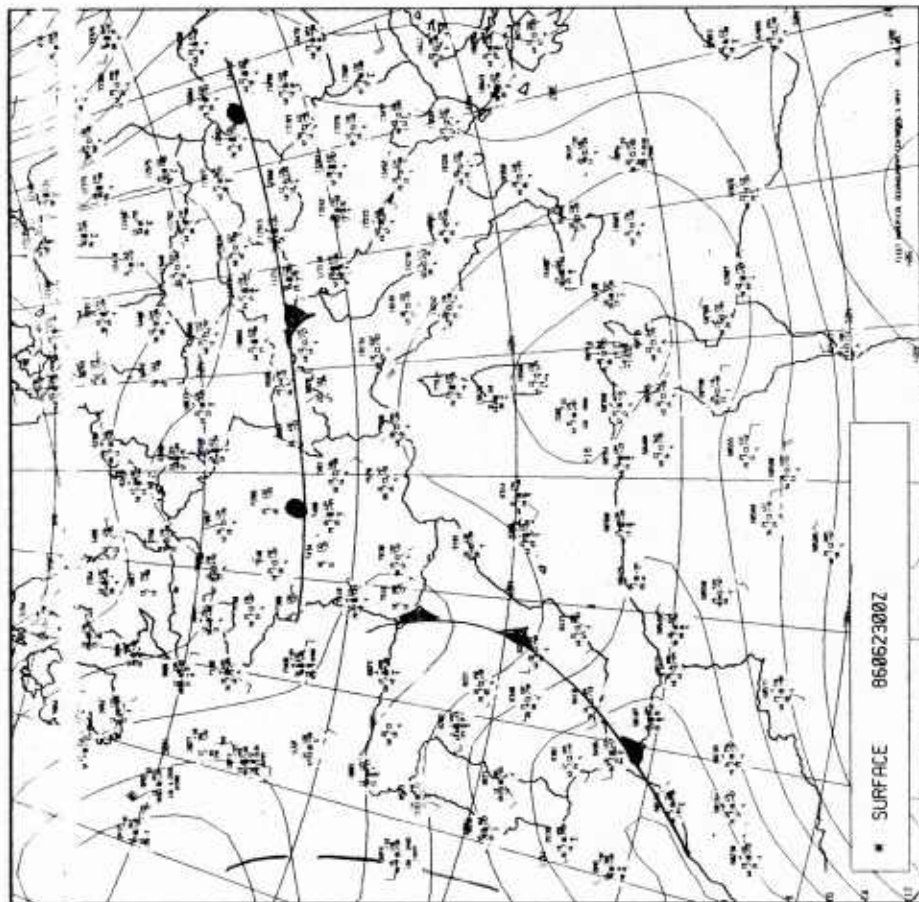
A small high dominates the West Med. Light fog is reported by Tyrrhenian Sea coastal stations. A 30 kt wind is reported in the Strait of Messina.



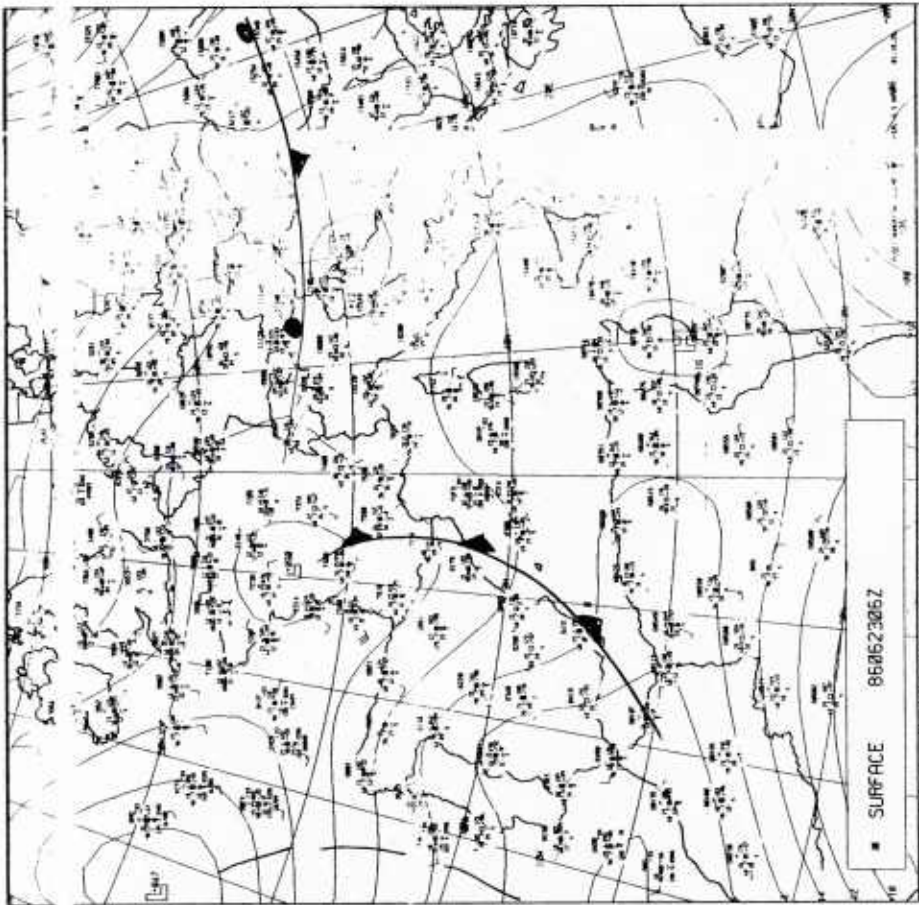
Winds are light and variable and skies are mostly clear as a high remains dominate over the West Med. Light fog with visibility 4-5 km are reported in the Sicilian Channel and Strait of Messina.



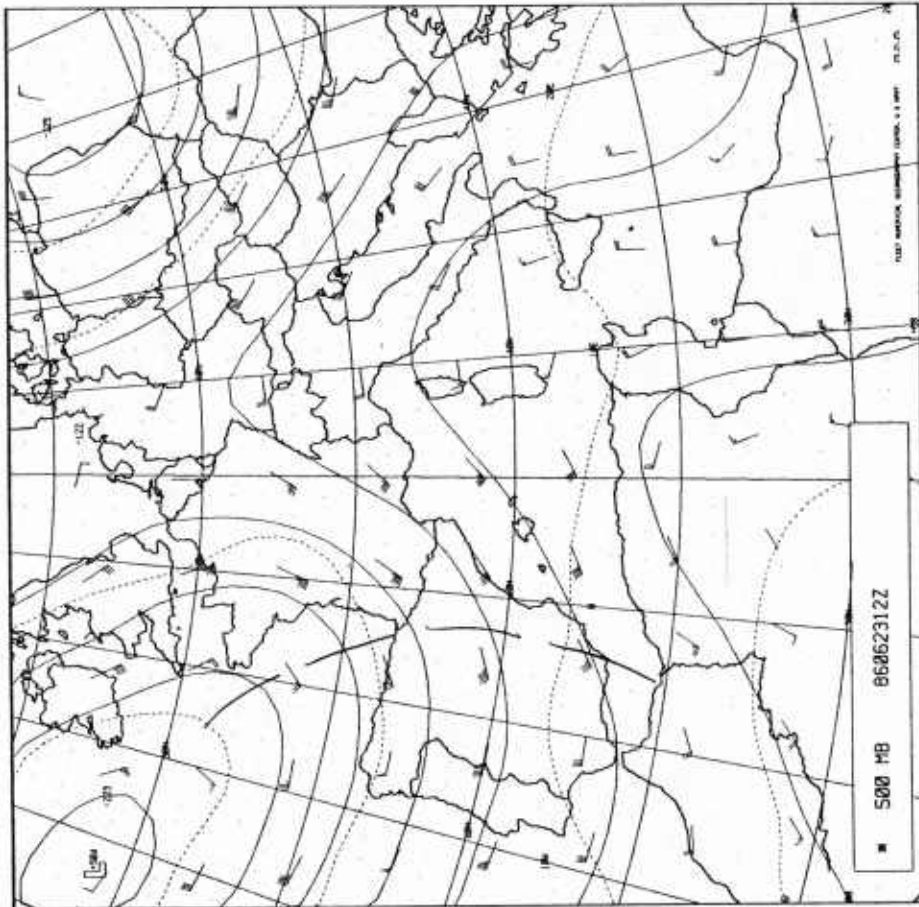
NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME



The high pressure cell moves south to Tunisia. Another weak cold front extending from the stalled low in the Atlantic moves through Spain.



The high continues to move south as the cold front penetrates the West Med. Spanish coastal stations report AC in the form of turrets while Tyrrhenian Sea coastal stations report light fog, 4-6 km visibility.

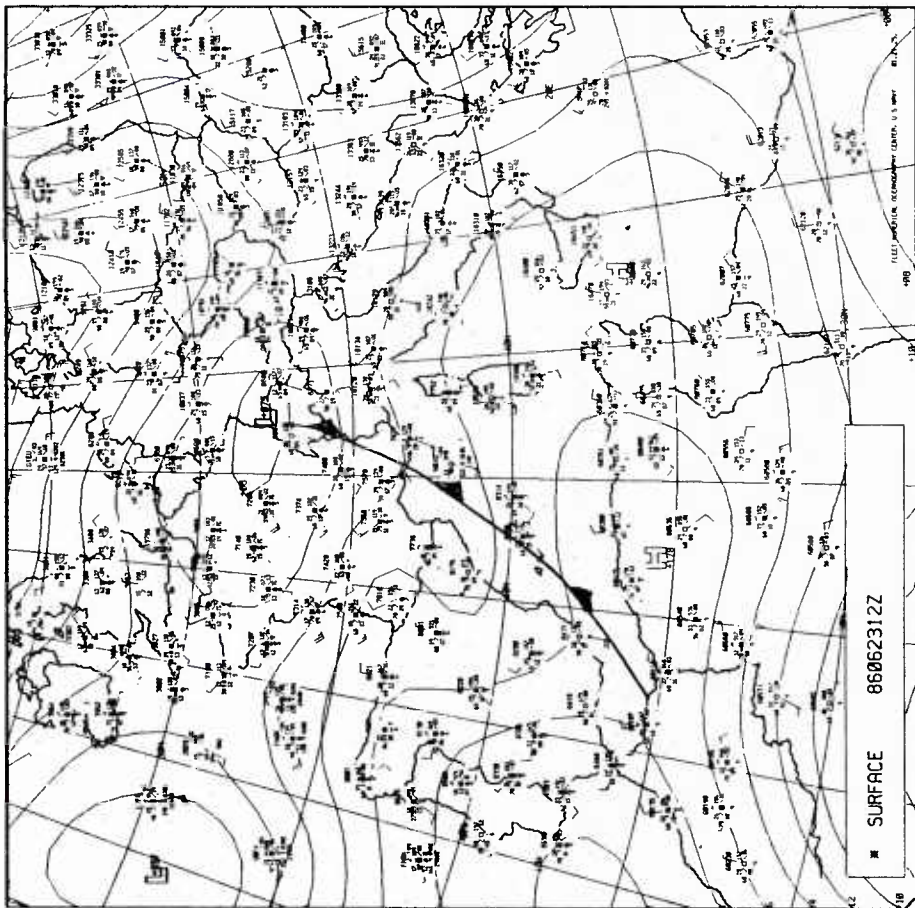


Ridging continues over the West Med. Wind speeds over the Alboran Sea increase as a short wave trough moves over the Iberian peninsula.

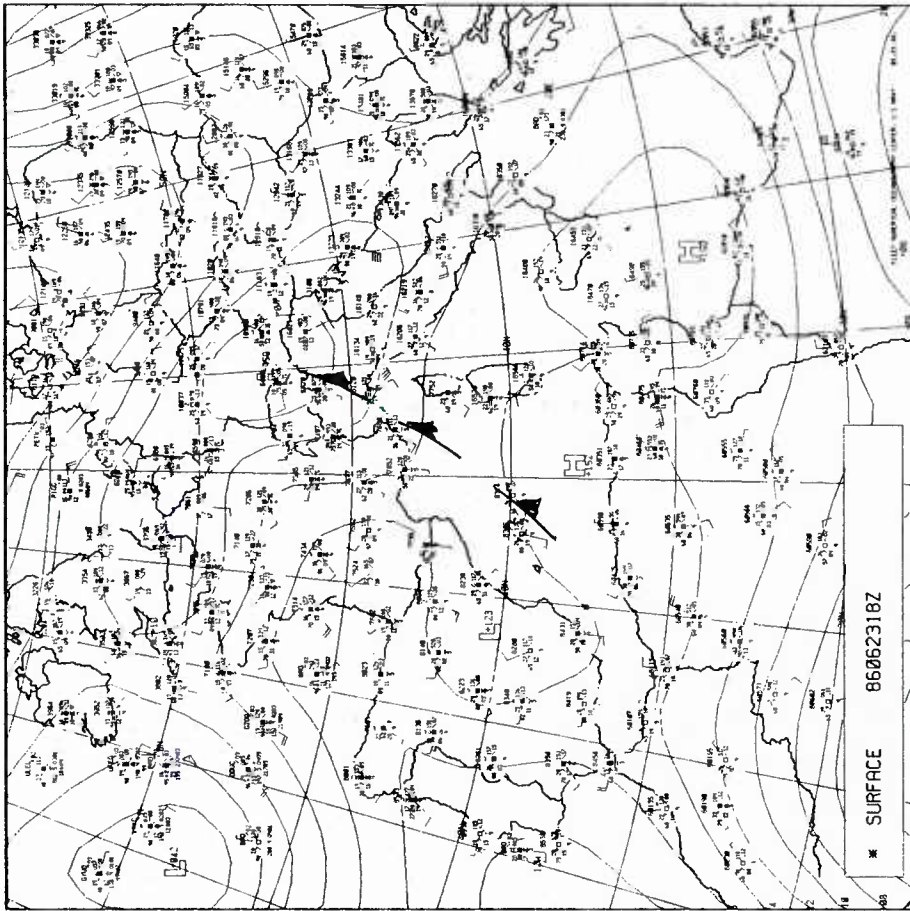


METEOSAT

1986 MONTH 6 DAY 23 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAW DATA SLOT 24 COPY/RIGHT - ESA -

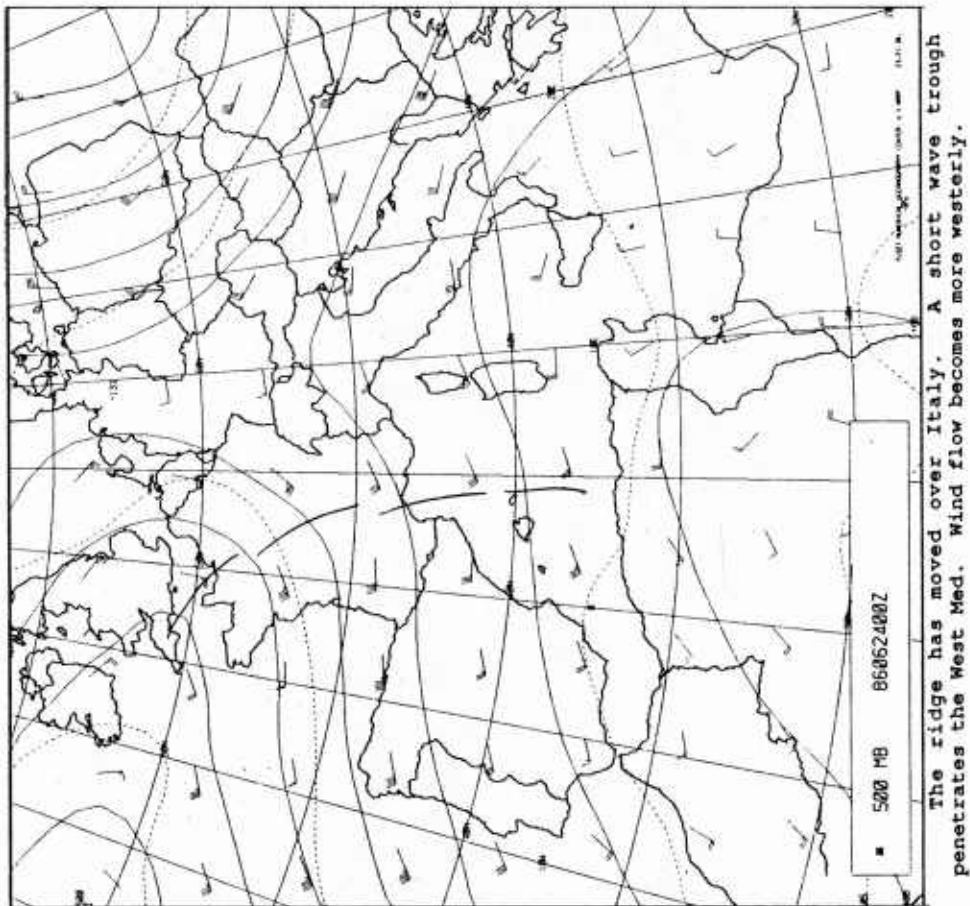


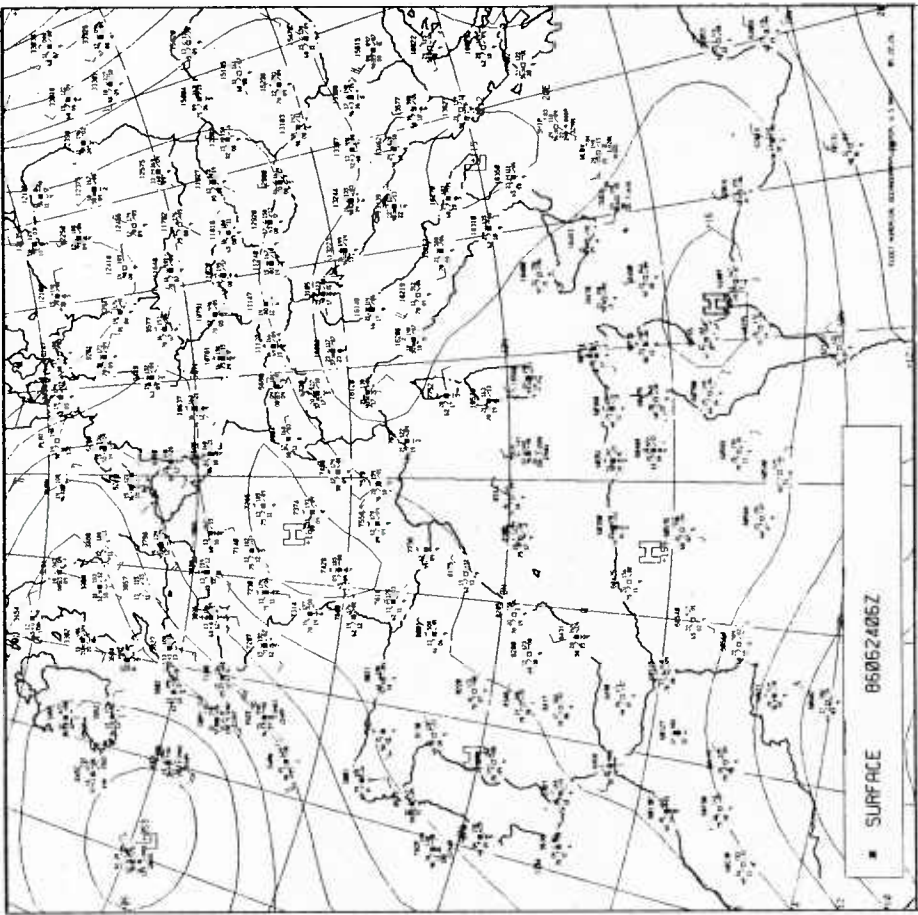
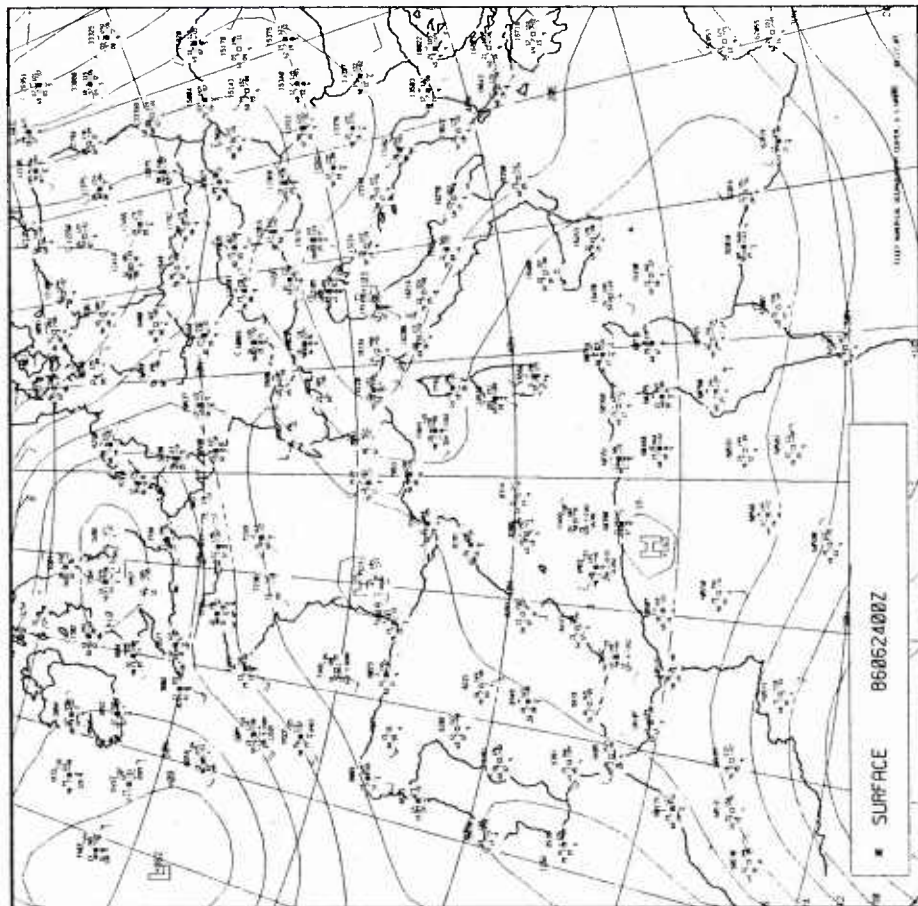
Ridging from the Atlantic blankets the West Med. However, a slow moving, weak cold front lies along the Spanish coast. Fog again is prevalent in the Tyrrhenian Sea, with visibilities ranging from 5-10 km

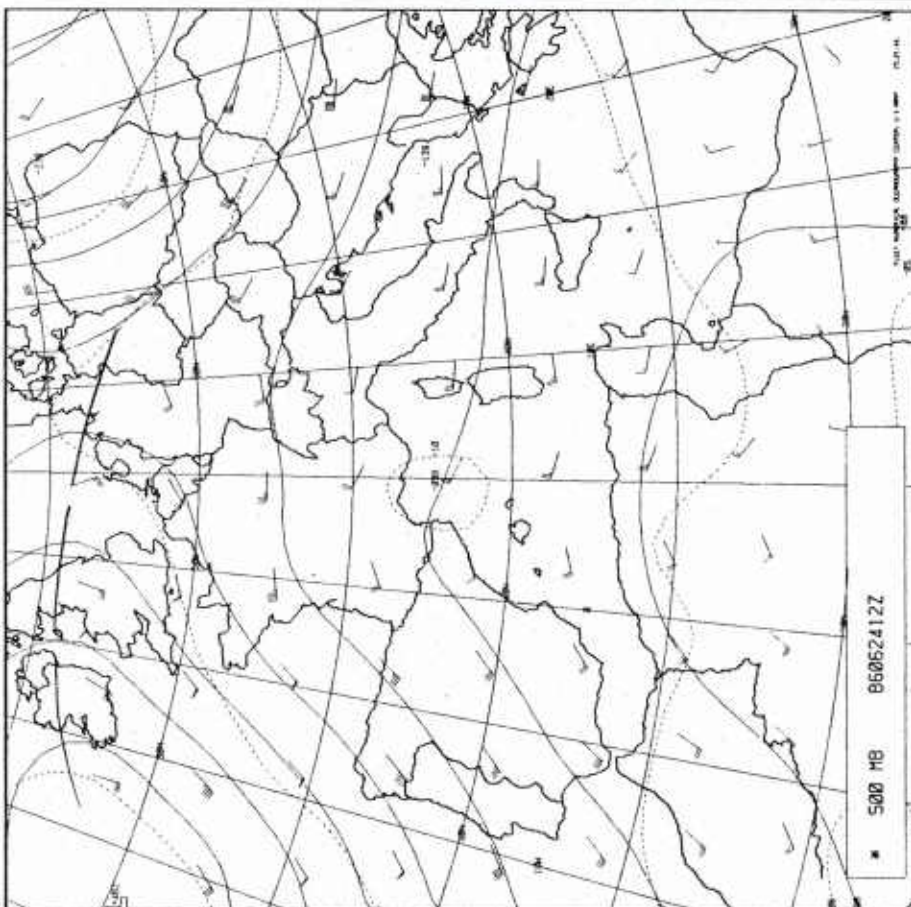


High pressure continues to dominate the West Med. North African stations report Cu and Ac clouds. Fog with 6 km visibility is again reported in the Sicilian Channel.

NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME

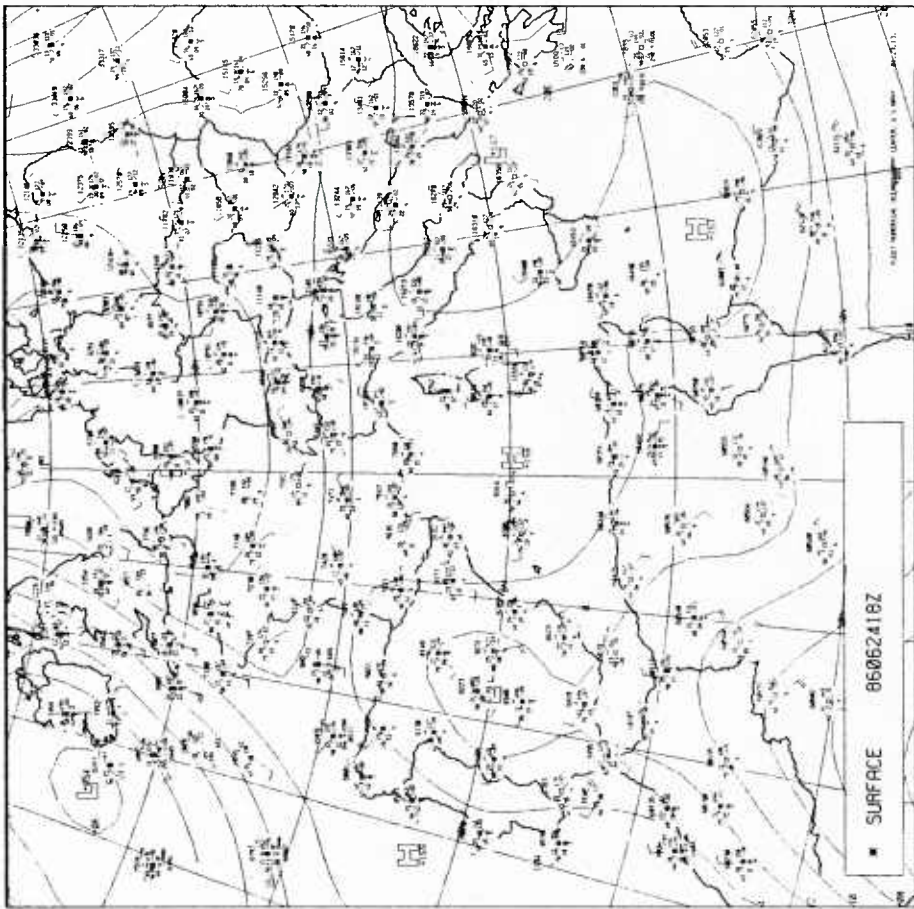
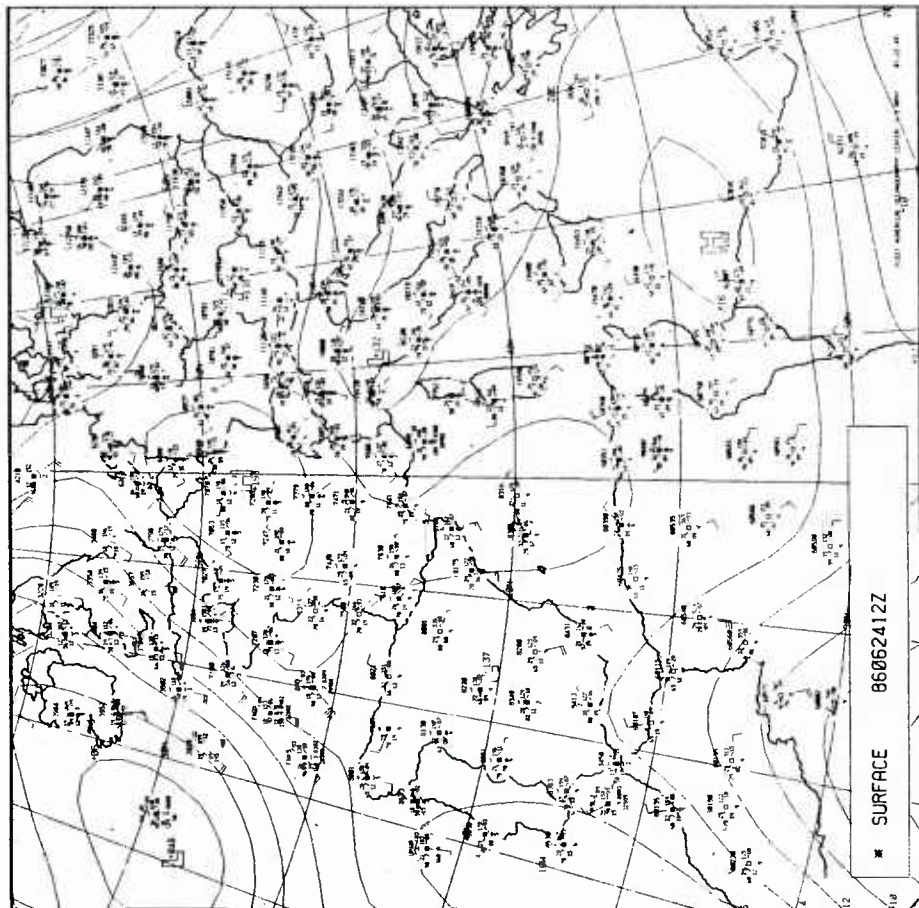


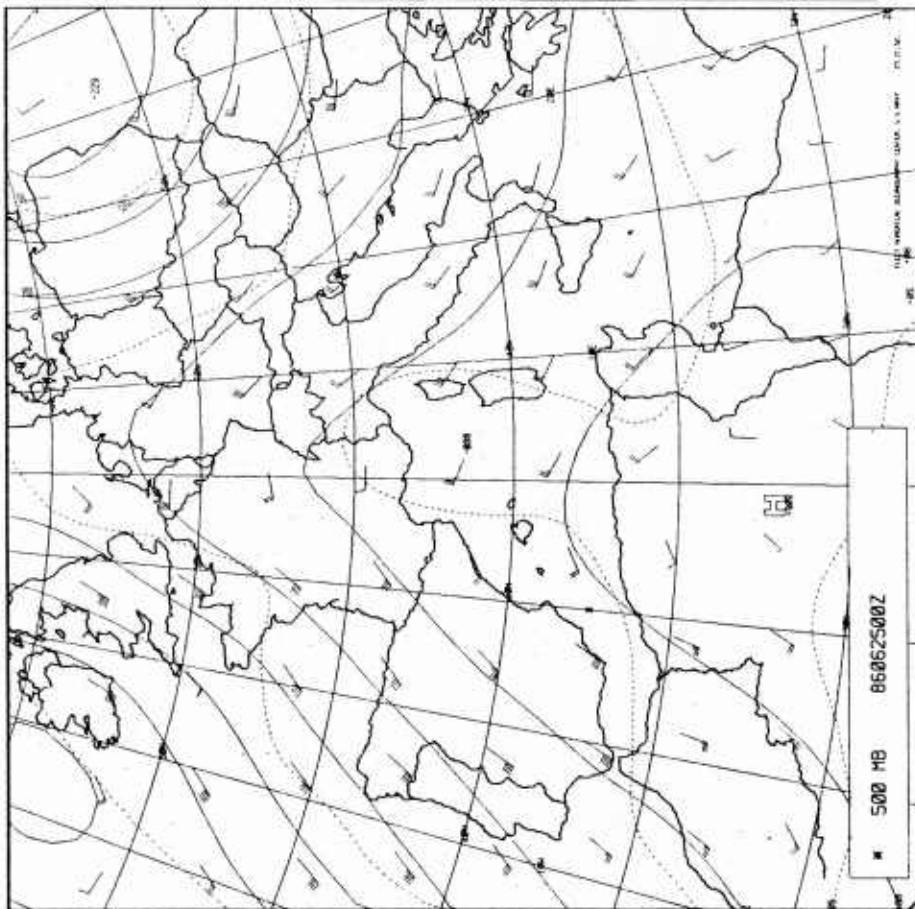




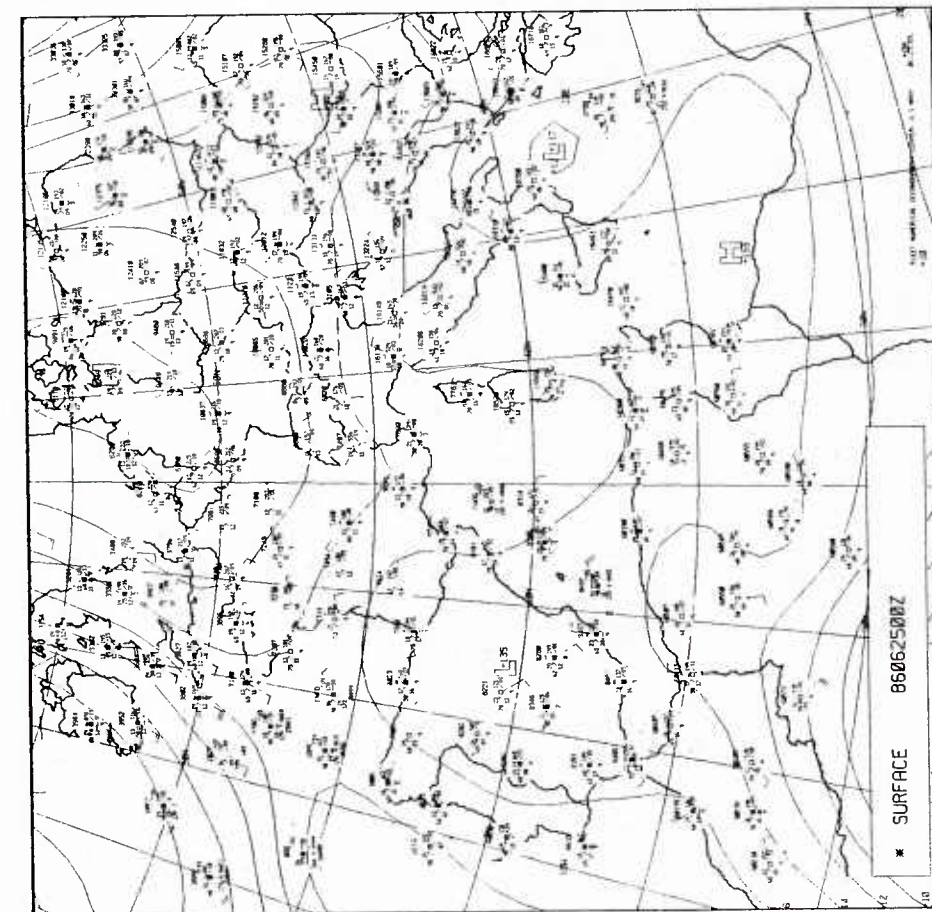
METEOSAT

1986 MONTH 6 DAY 24 TIME 1155 GMT (NORTH) CH. VIS 2
 NOMINAL SCAN RAW DATA SLOT 24 COPYRIGHT - ESA -

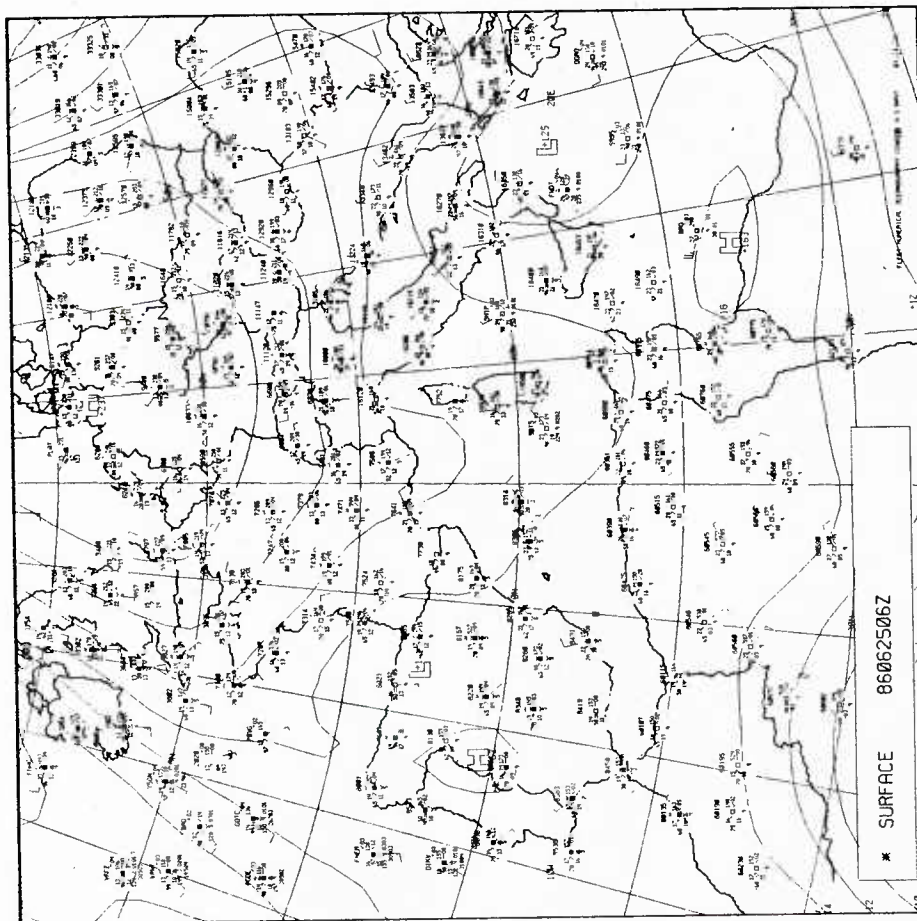




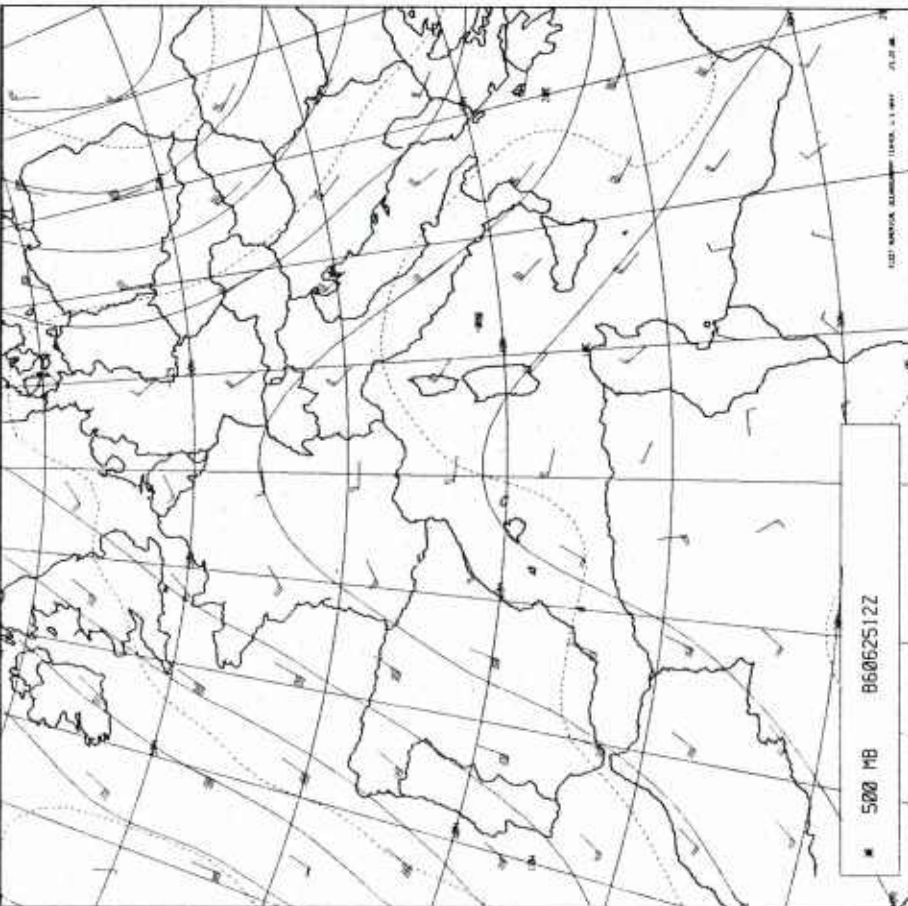
25 JUN 86 1400 GMT VIS



Mostly clear skies prevail except along the Spanish coast where a veil of Cs is reported. Satellite imagery depicts a grey shade in the central West Med. Surface observations are lacking in the area, but those that exist give no indication of clouds or obstructions to vision. The gray shade is dust aloft from North Africa.



Ridging from the high over Europe extends into the West Med. Light fog is reported around the Tyrrhenian Sea. Ac is reported surrounding the Alboran Sea.

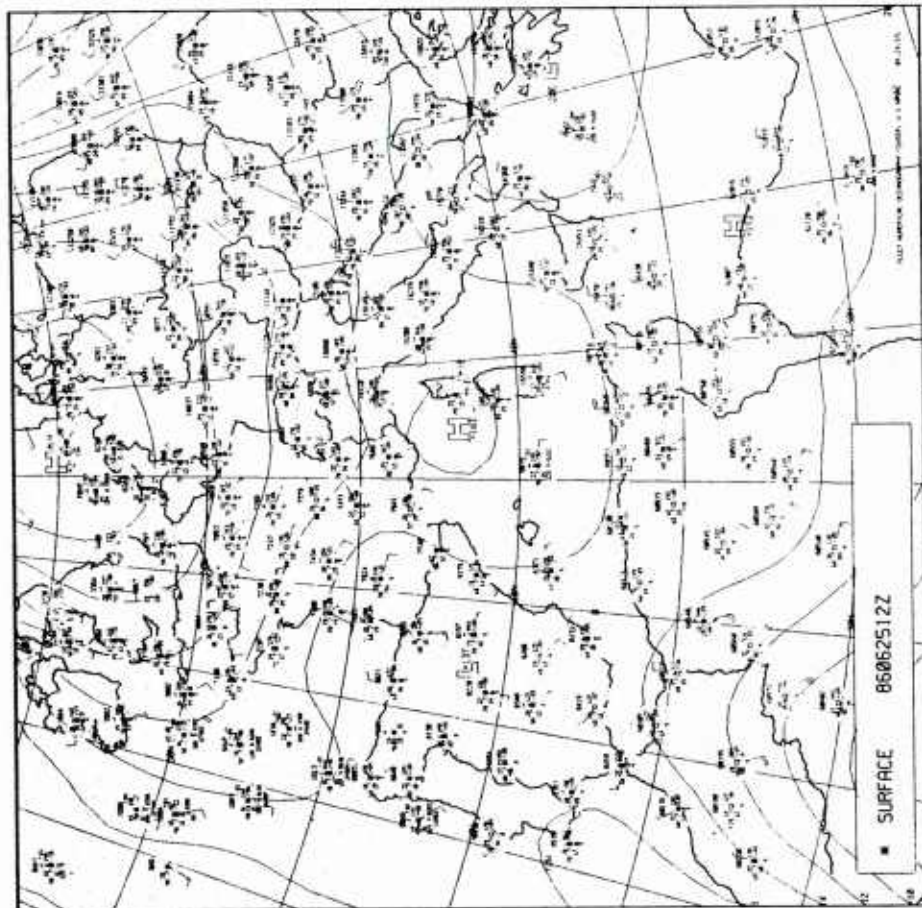


The ridge builds further into central Europe. Winds over the Alboran Sea are southwesterly while those over the Tyrrhenian are northwesterly.

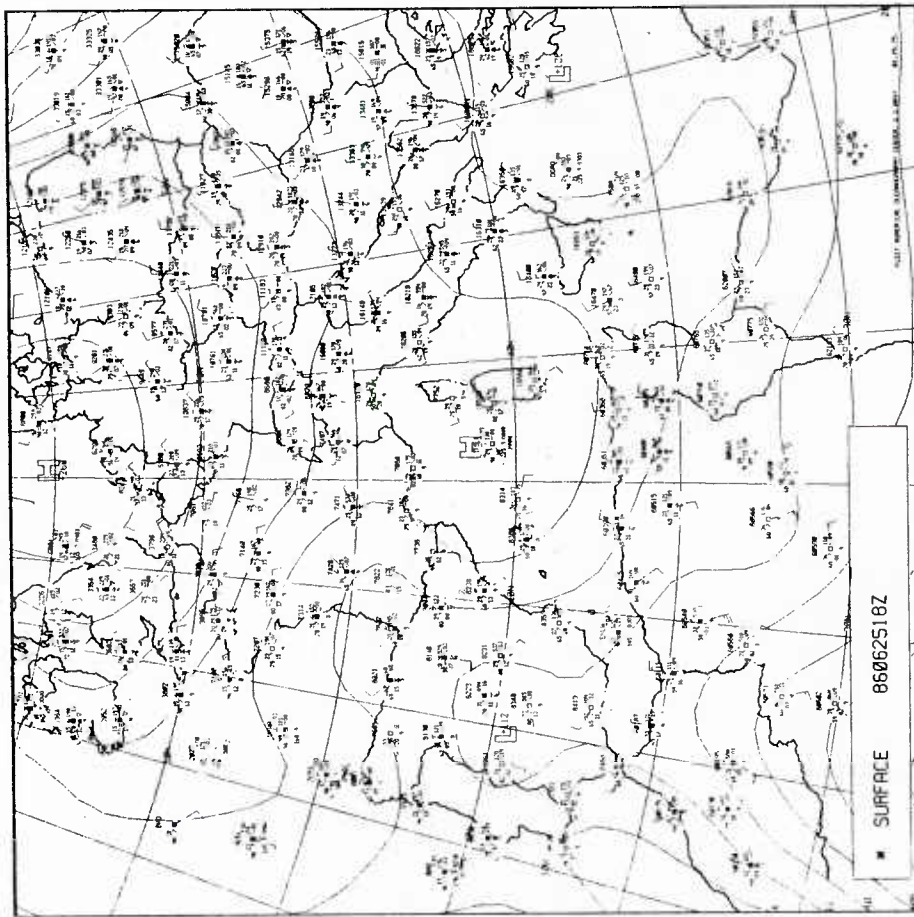


METEOSAT

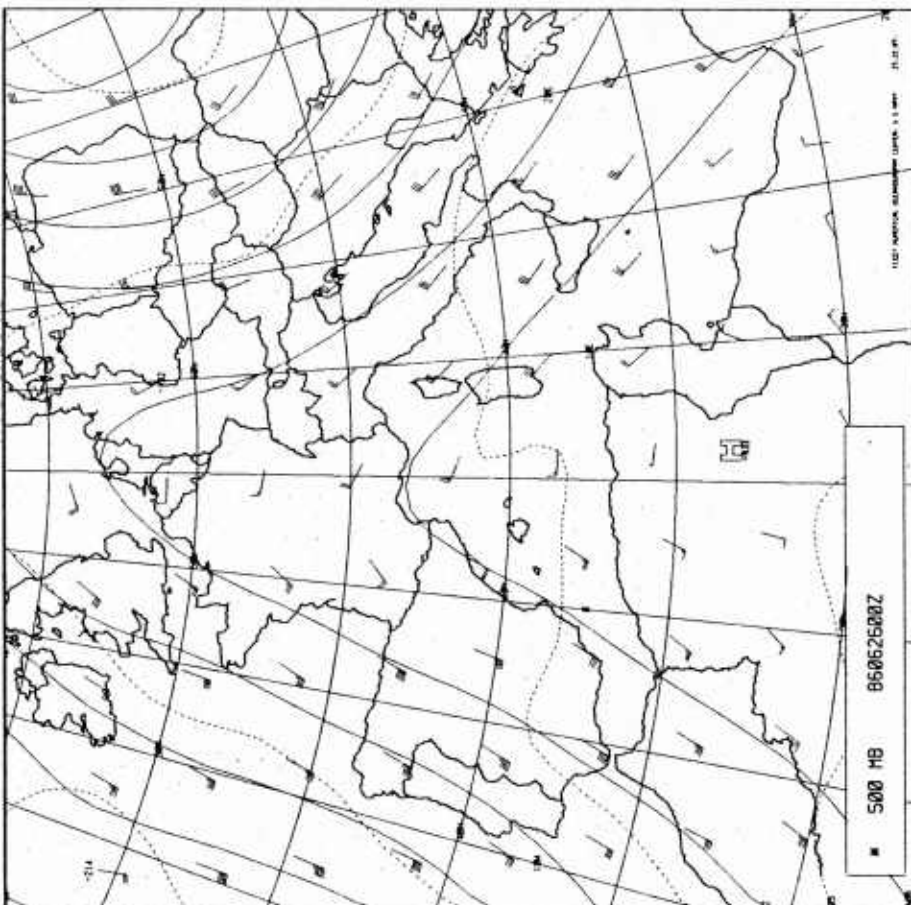
1986 MONTH 6 DAY 25 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN-RW DATA SLOT 24 COF-RIGHT - ESA -



A high has developed near Corsica. Ci, Cs, and a double layer of AC is reported by a ship at 39.5N 05.5E. Elsewhere, light fog continues along the Tyrrhenian coasts.



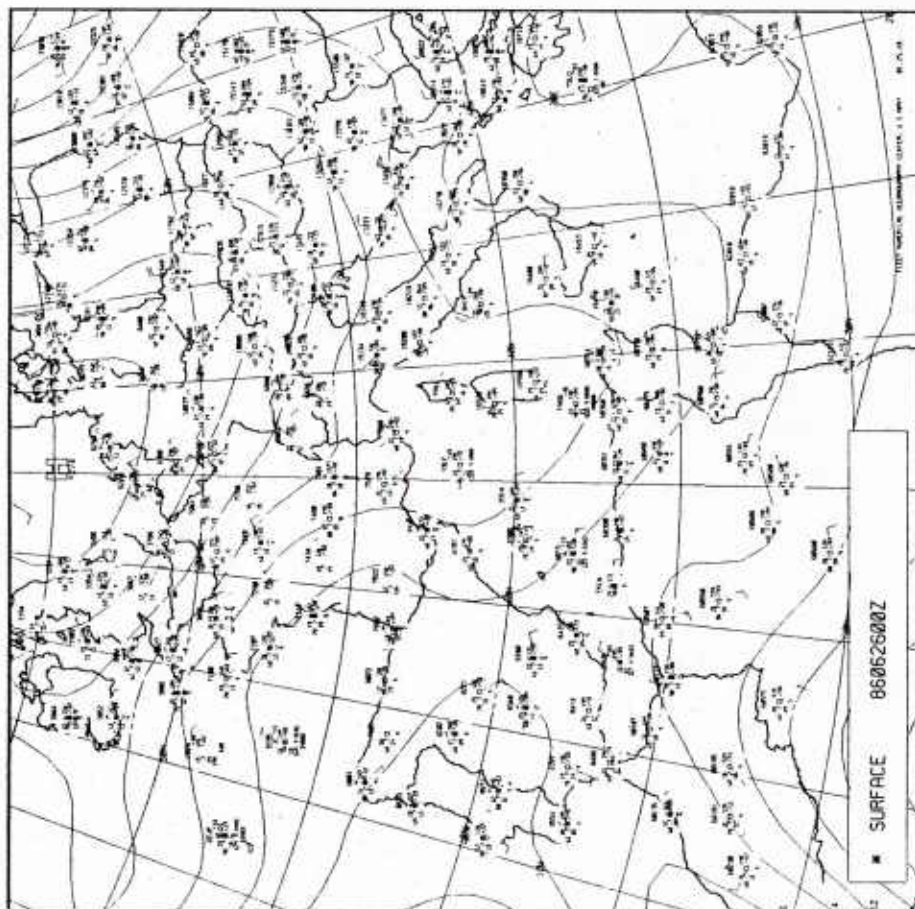
The high near Corsica ridges into the Gulf of Sirte. Winds are light and variable throughout the West Med. Ci lies over the North African coastal stations.



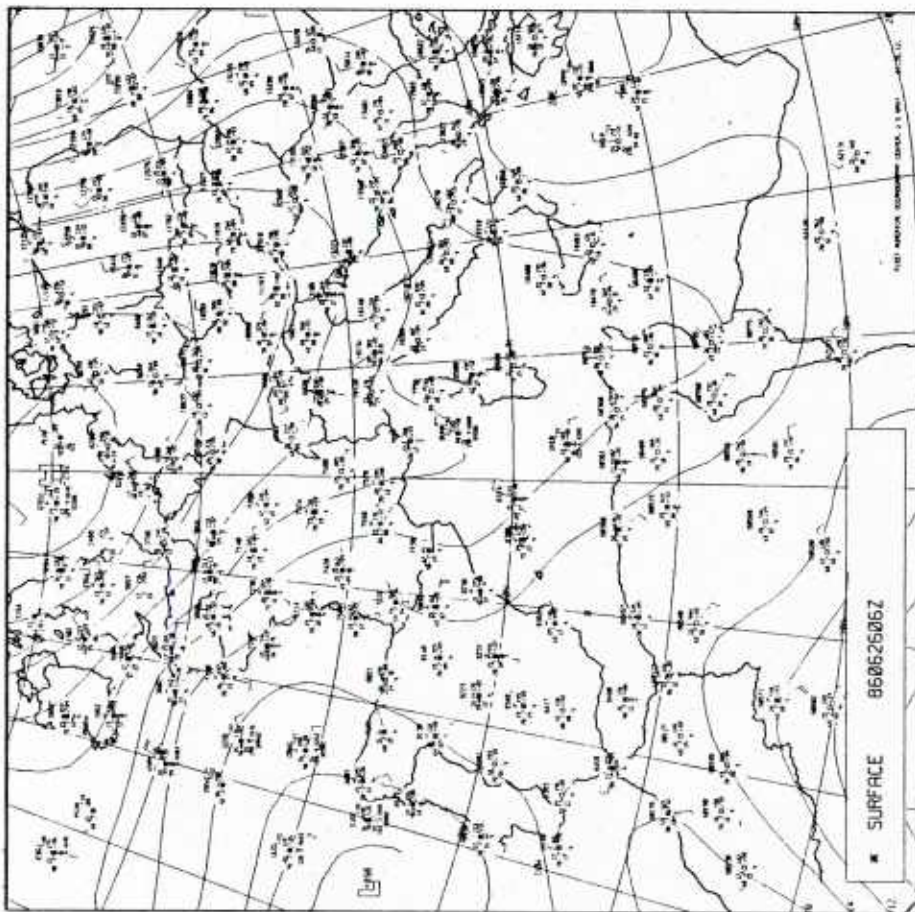
The ridge over Europe and the West Med continues intensifying. Moderate southwesterly winds over Spain approach a sharp turn in the isotherm field over Europe. This generally causes overshooting and an accumulation of mass at the curvature.



26 JUN 86 0700 GMT VIS



The West Med high intensifies and extends its ridging into Egypt. Mostly clear skies and light winds prevail.

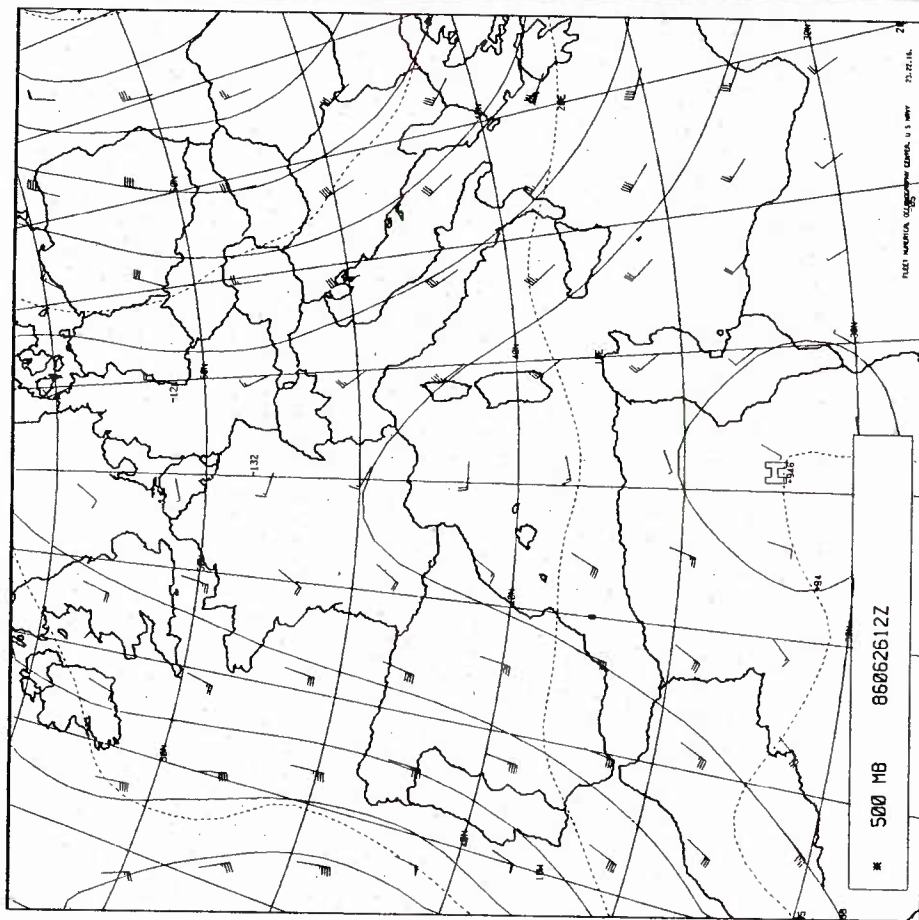


Ridging from the North Sea extends through the West Med into the Gulf of Sirte. Thin AC, Ci, and some Cu are reported in and near the Alboran Sea. Light fog with 5 km visibility is reported in the Sicilian channel.

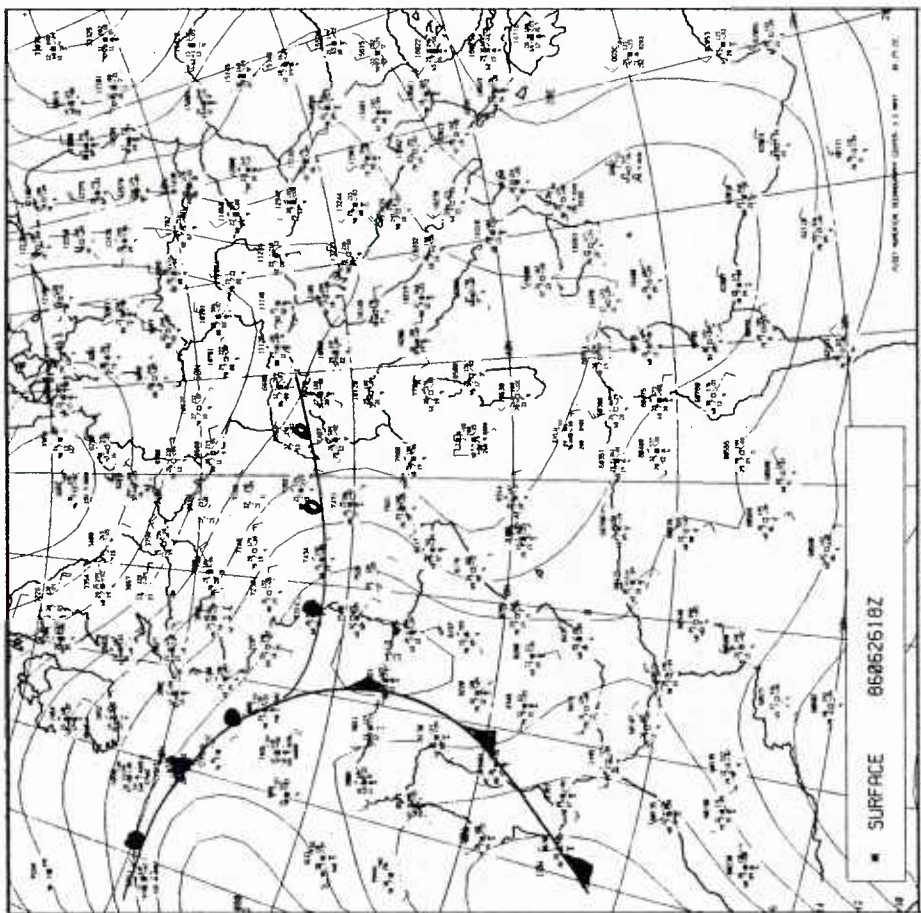
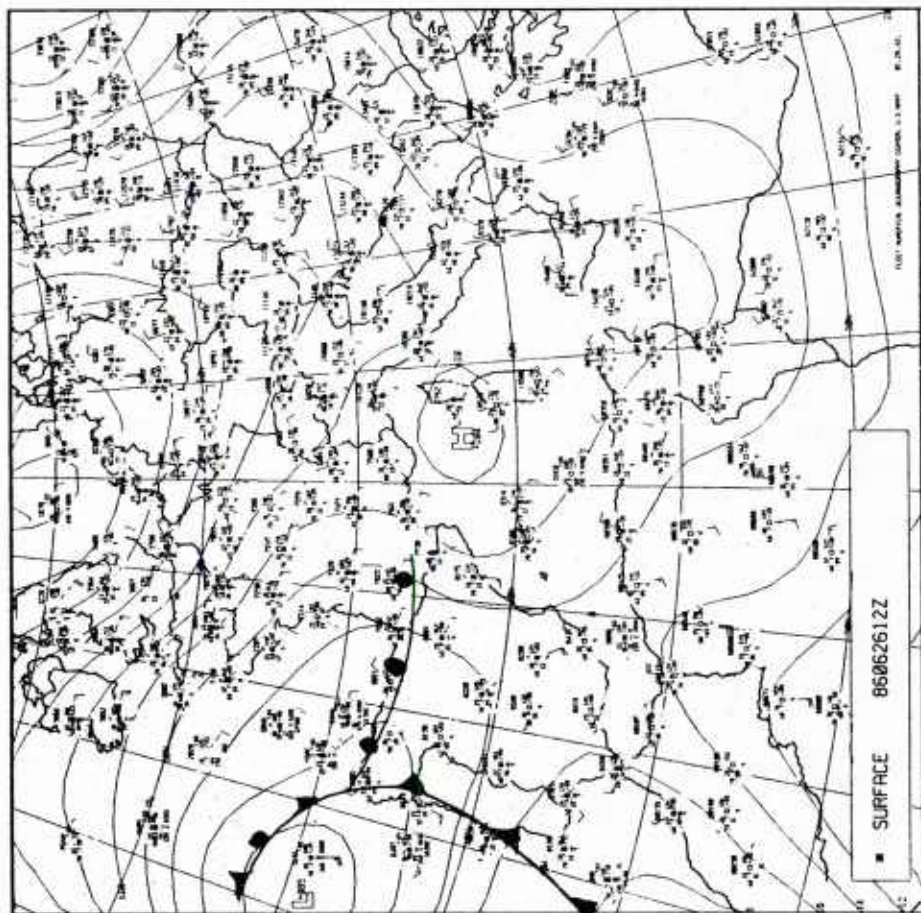


METEOSAT

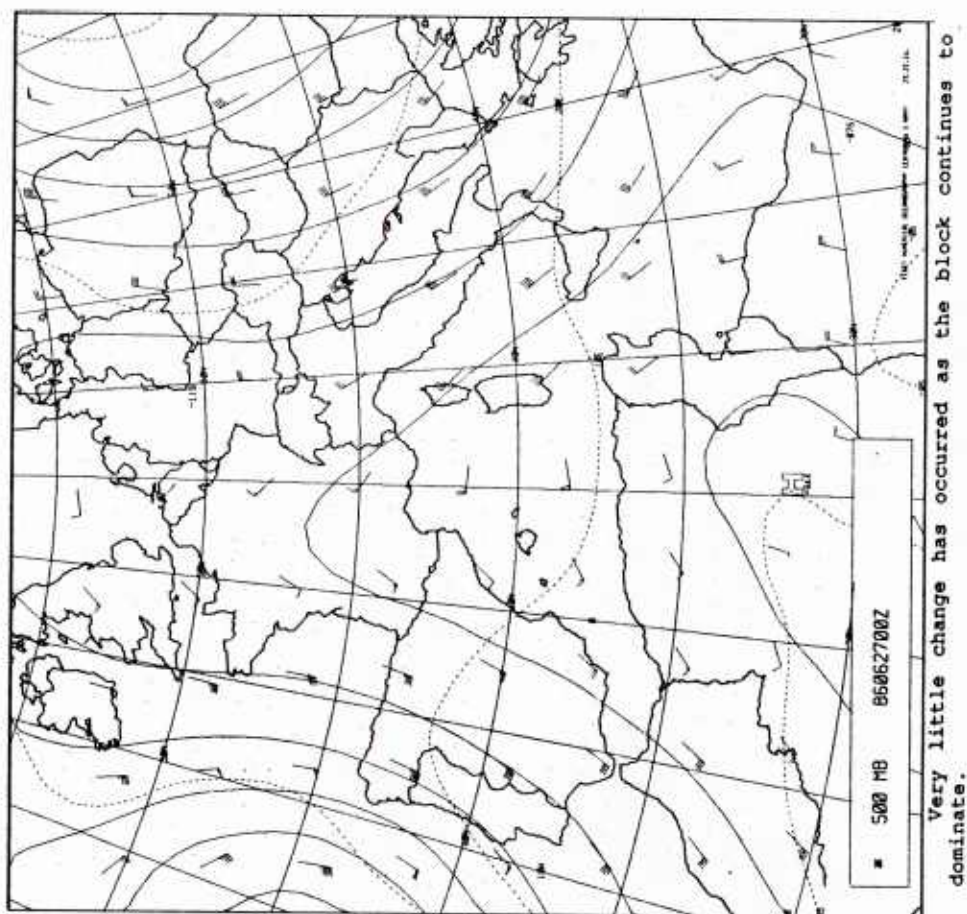
1986 MONTH 6 DAY 26 TIME 1155 GMT (NORTH) CH. VIS 2
 NOMINAL SCAN/RAM DATA SLOT 24 COPYRIGHT - ESA -

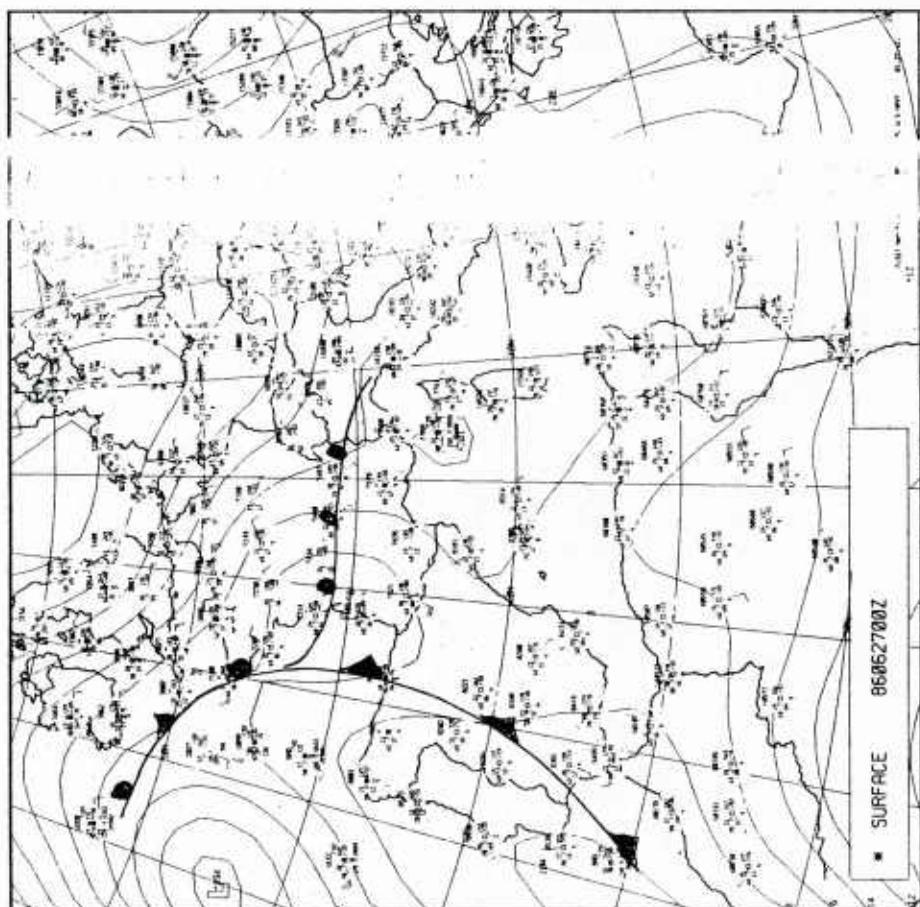


Blocking has formed over Europe and the West Med.

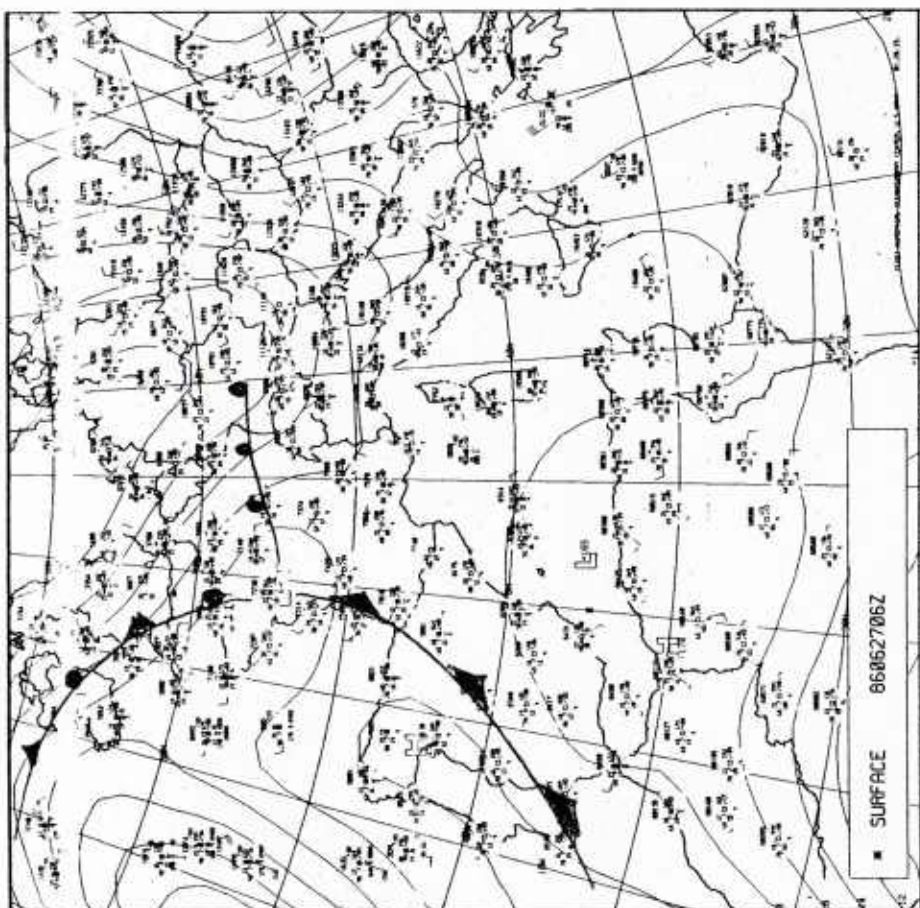


NO CORRESPONDING NOAA SATELLITE IMAGE
FOR THIS DATE AND TIME

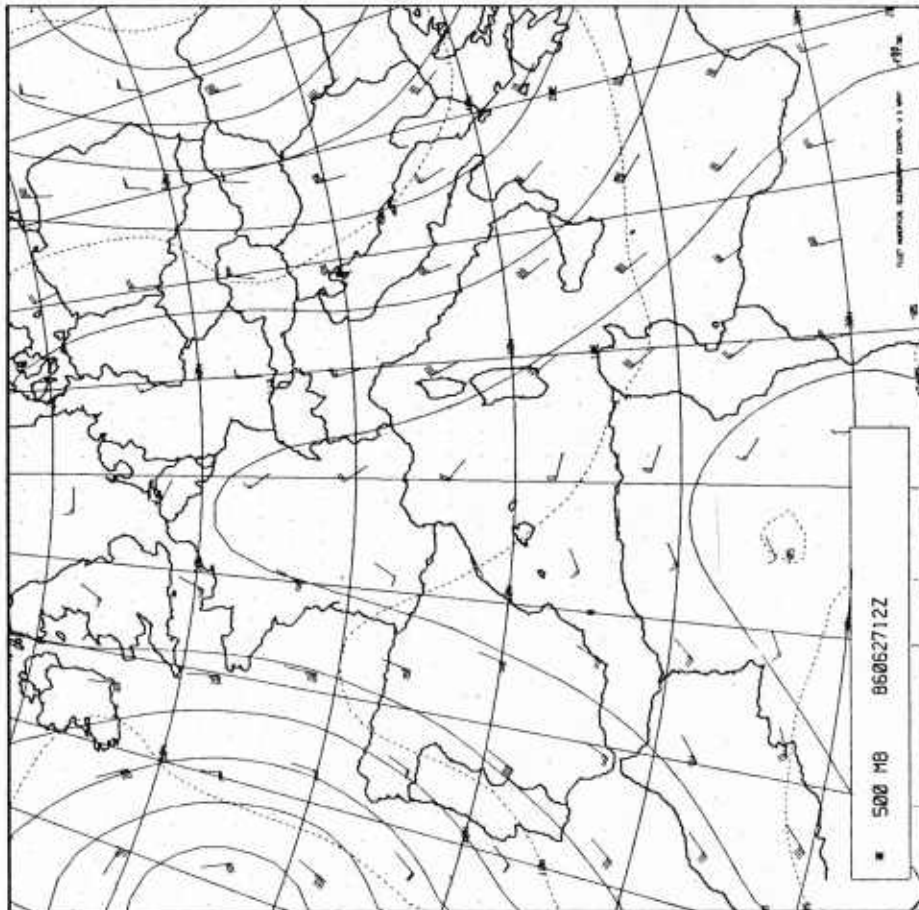




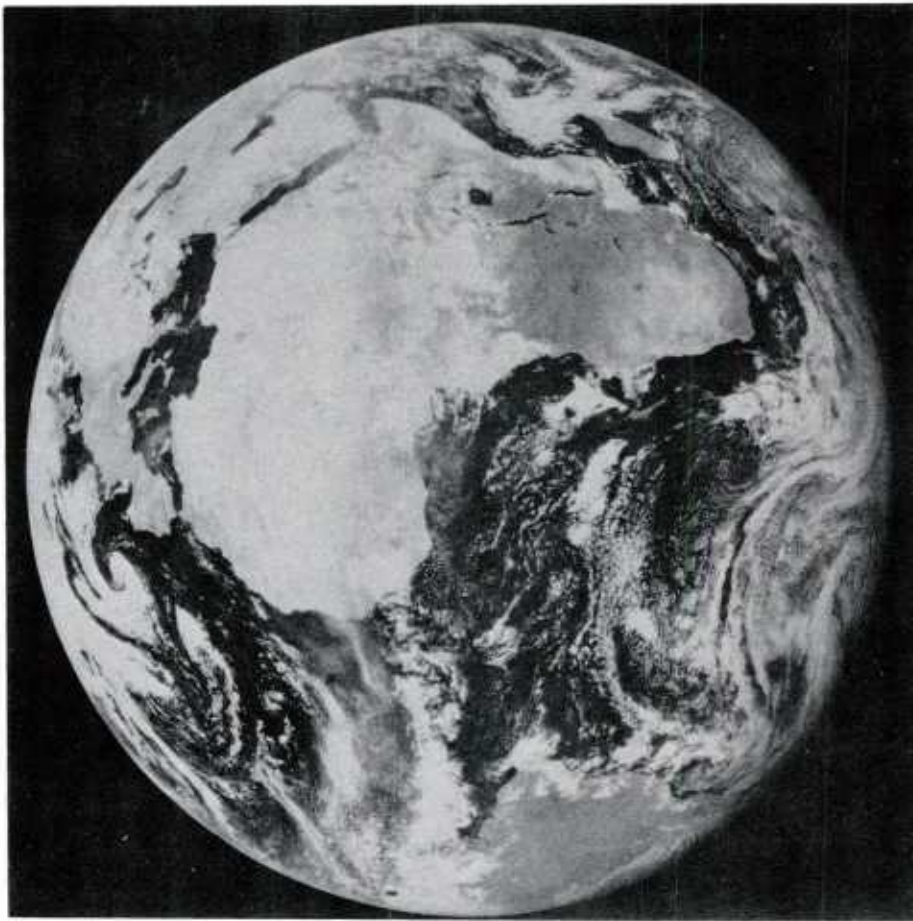
Mostly clear skies with light and variable winds cover the West Med area.



Light fog surrounds the Tyrrhenian Sea and the northern West Med. Otherwise, clear skies prevail throughout.

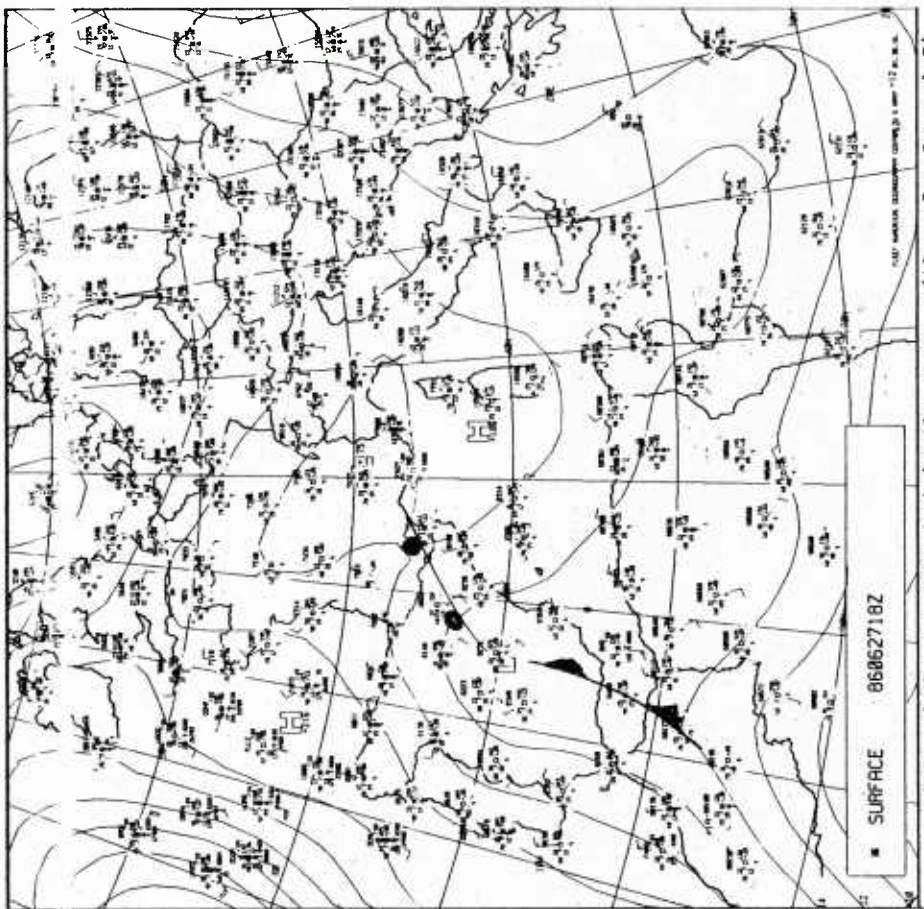
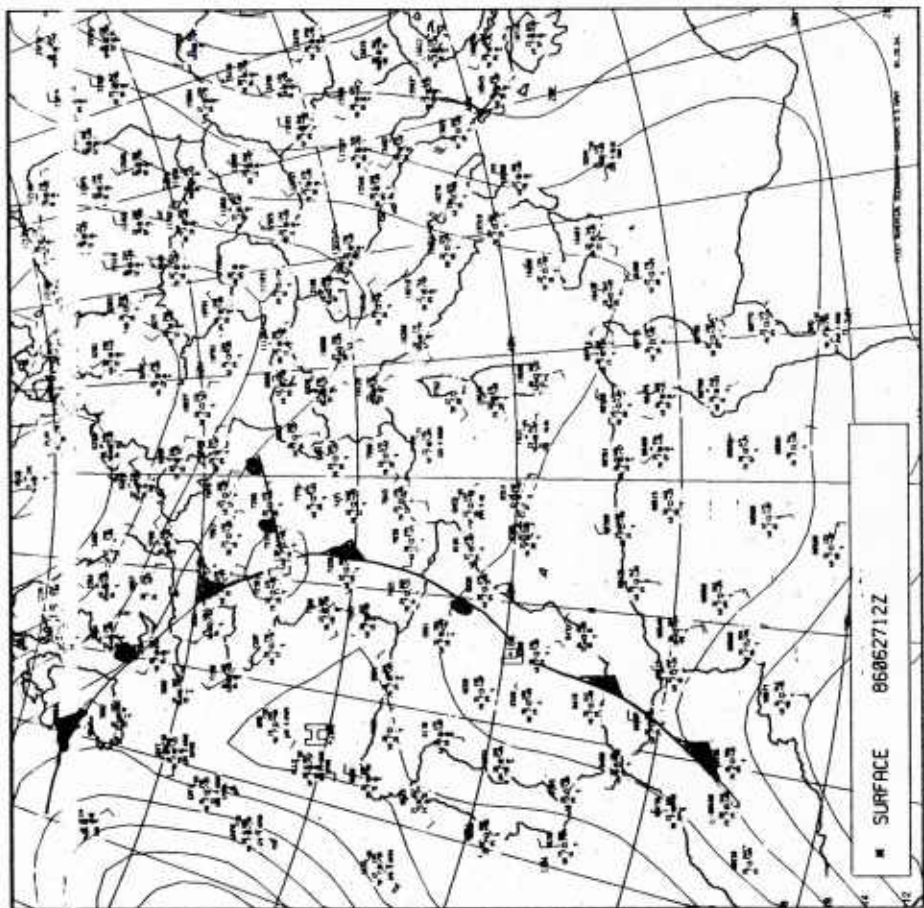


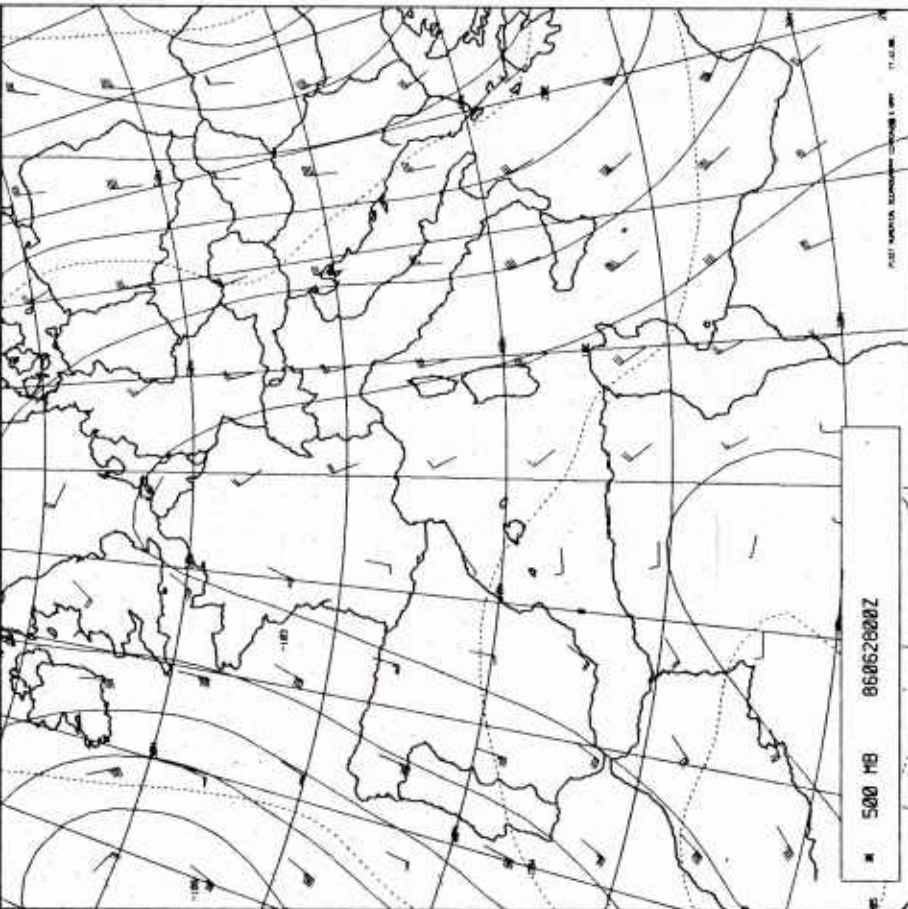
Slight retrograding is noticeable. The winds over Spain have decreased as a jet forms west of Portugal.



METEOSAT

1986 MONTH 6 DAY 27 TIME 1155 GMT (HORTH) CH. VIS 2
NOMINAL SCRY-FRU DATA SLOT 24 COPYRIGHT - ESA -

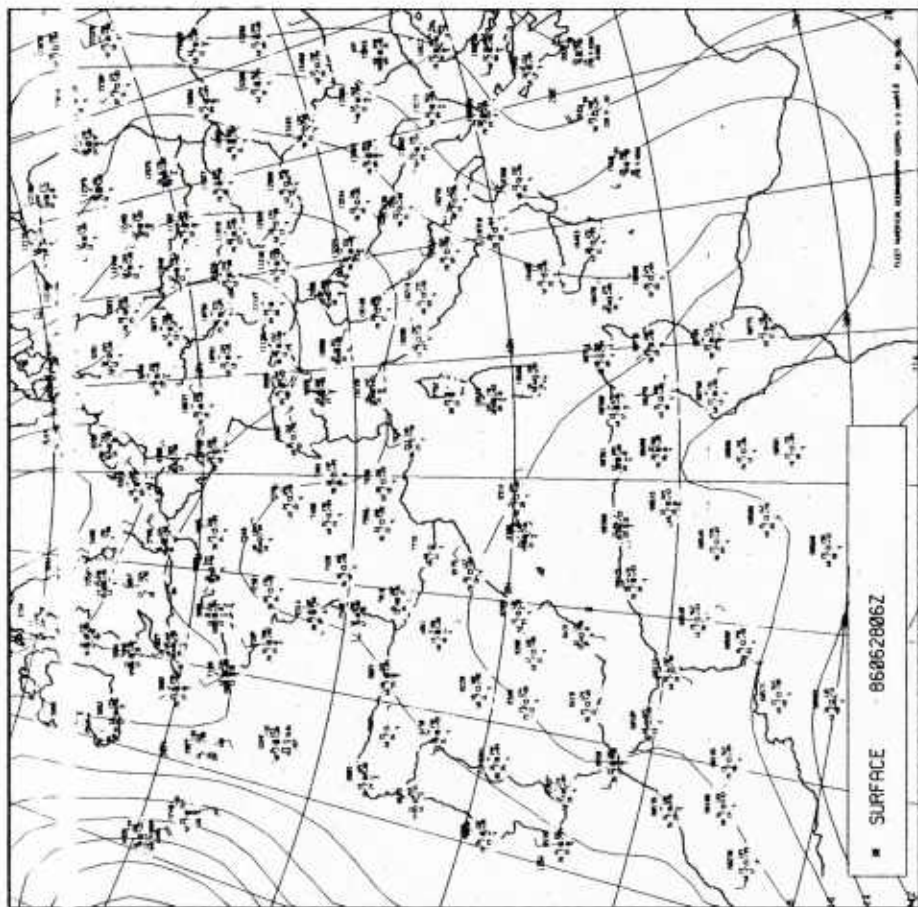
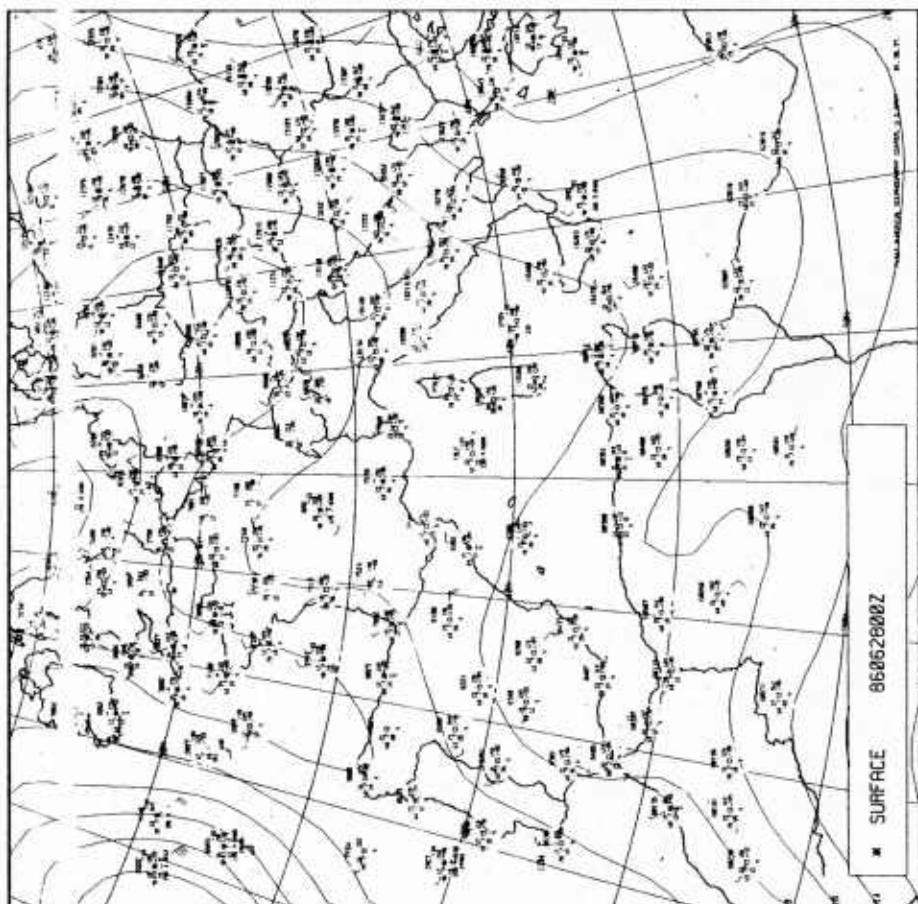


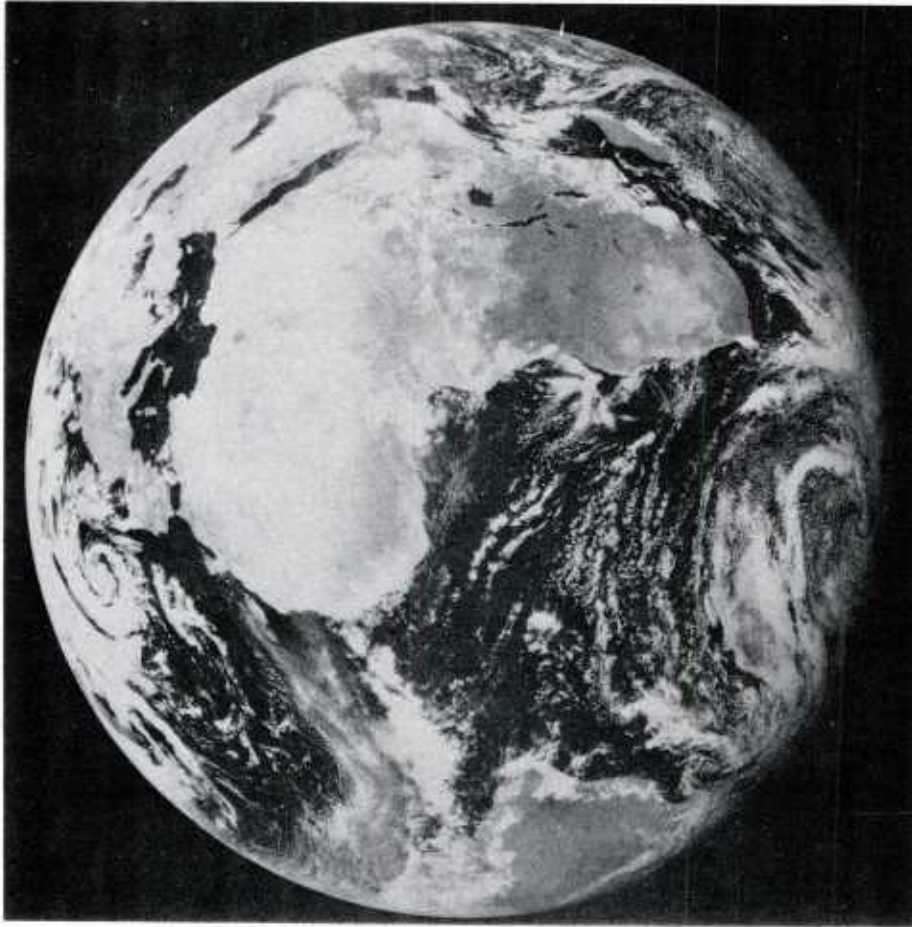
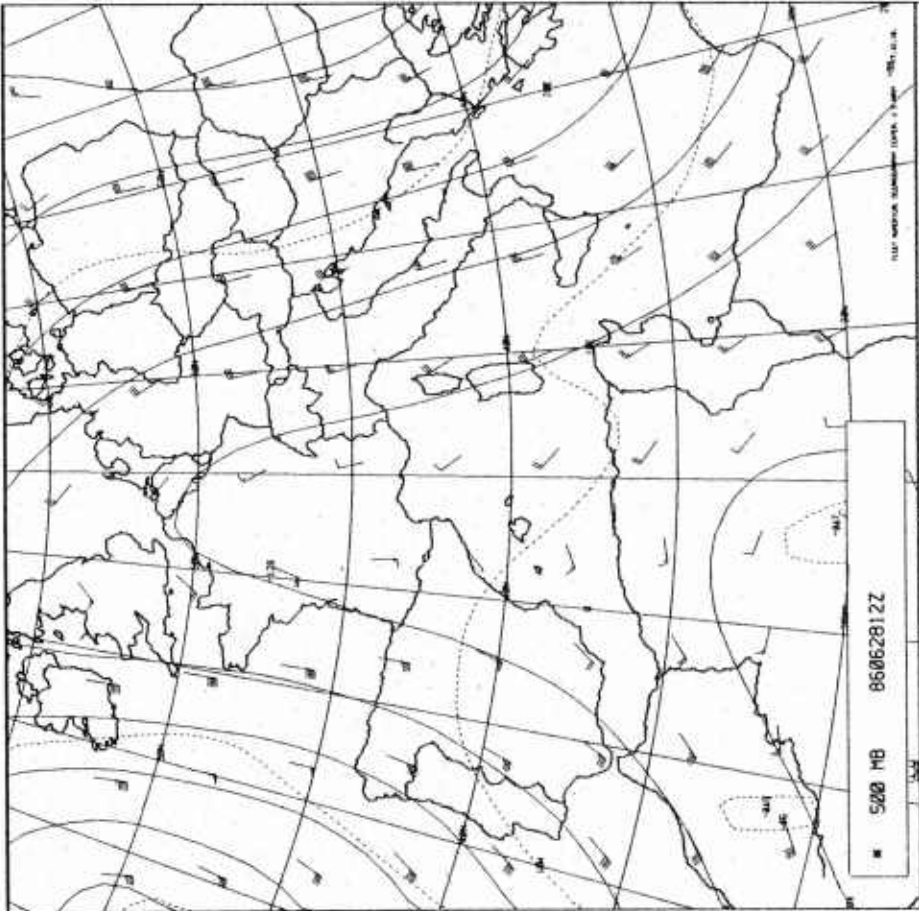


The low isohet over eastern Europe moves south to the Black Sea. The West Med/Europe block continues to slowly retrograde.



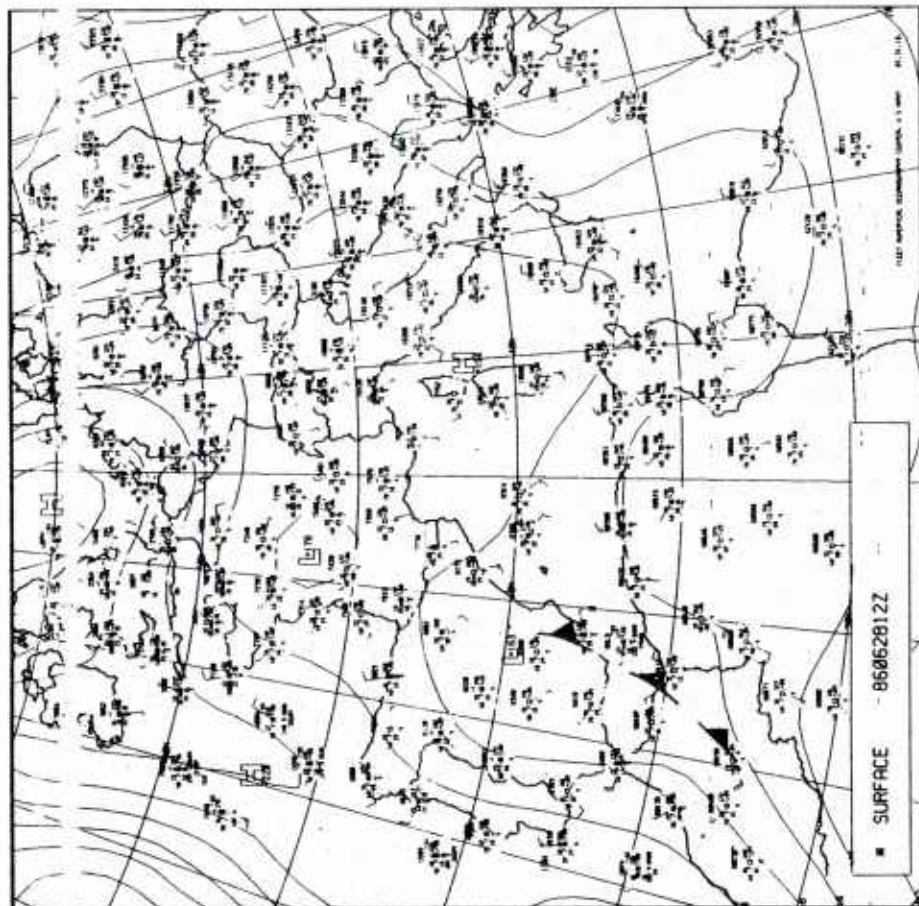
28 JUN 86 1400 GMT VIS



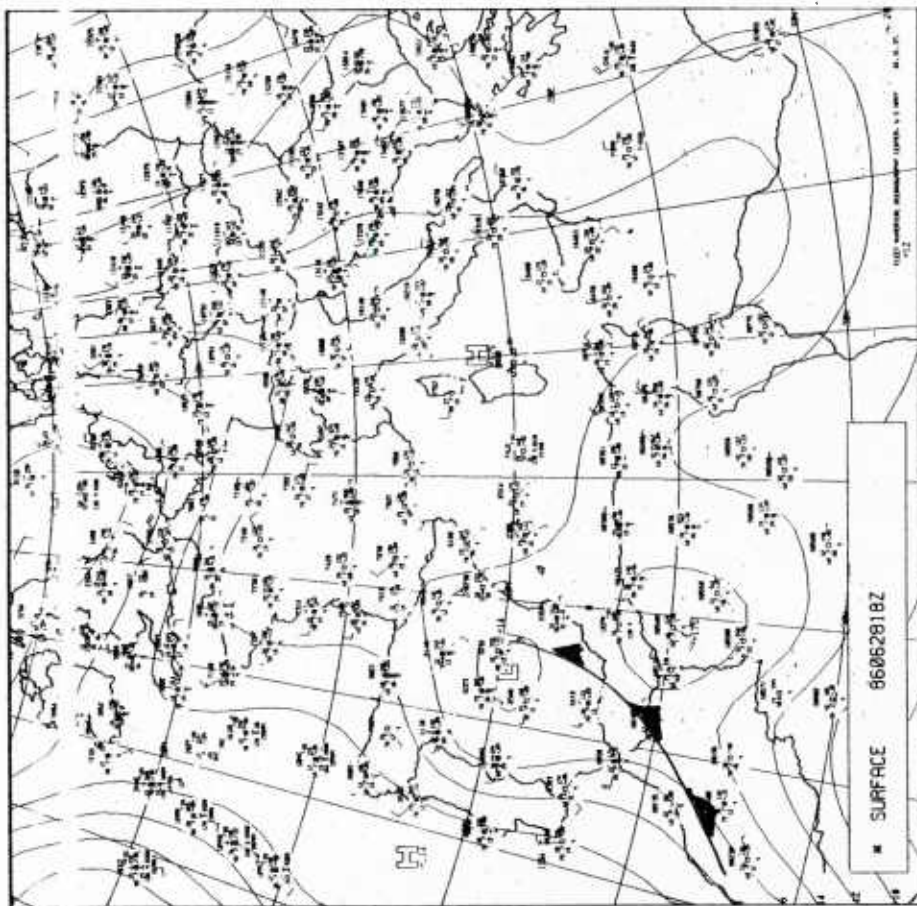


METEOSAT

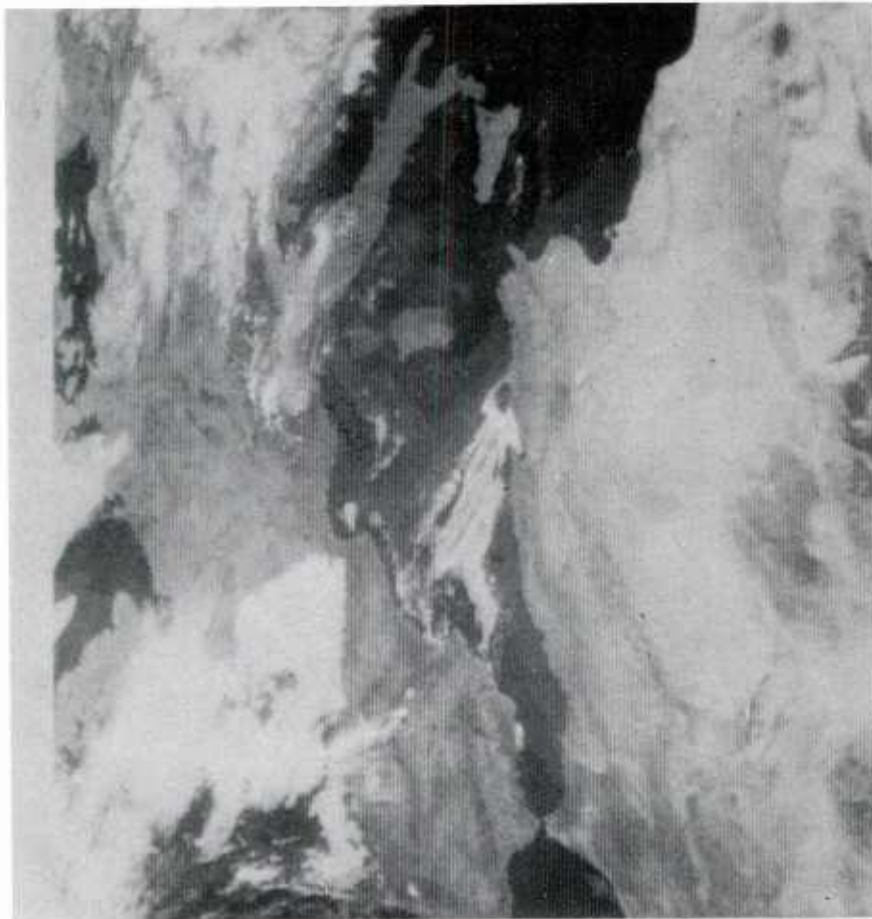
1986 MONTH 6 DAY 28 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN RAW DATA SLOT 24 COPYRIGHT - ESA -



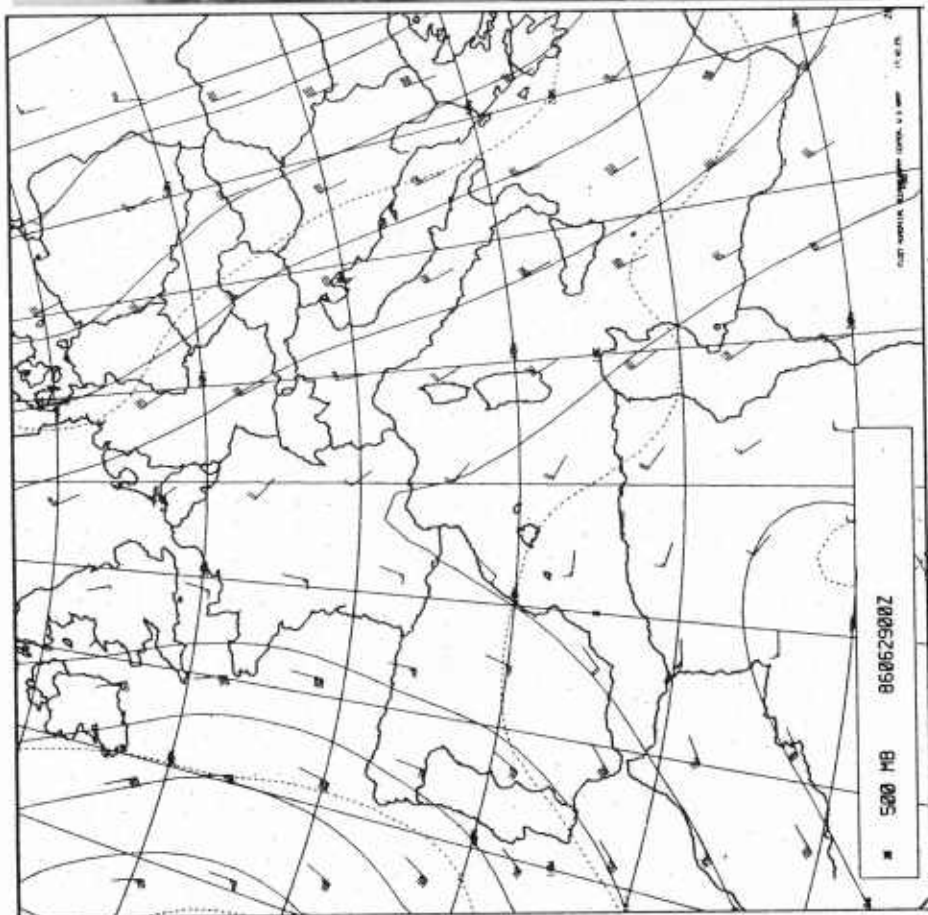
Cyclogenesis and frontogenesis is occurring over Spain and the Alboran Sea.

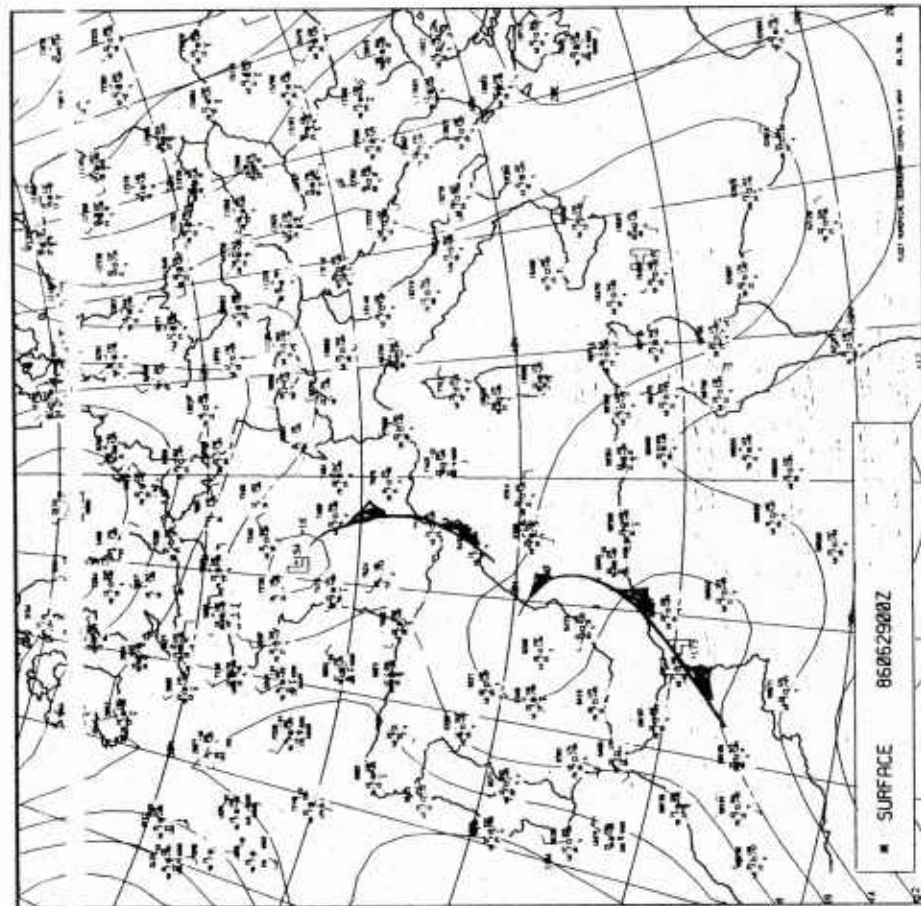


The low over Spain remains stationary and its associated cold front stalls over the Alboran Sea. Light and variable winds prevail elsewhere.

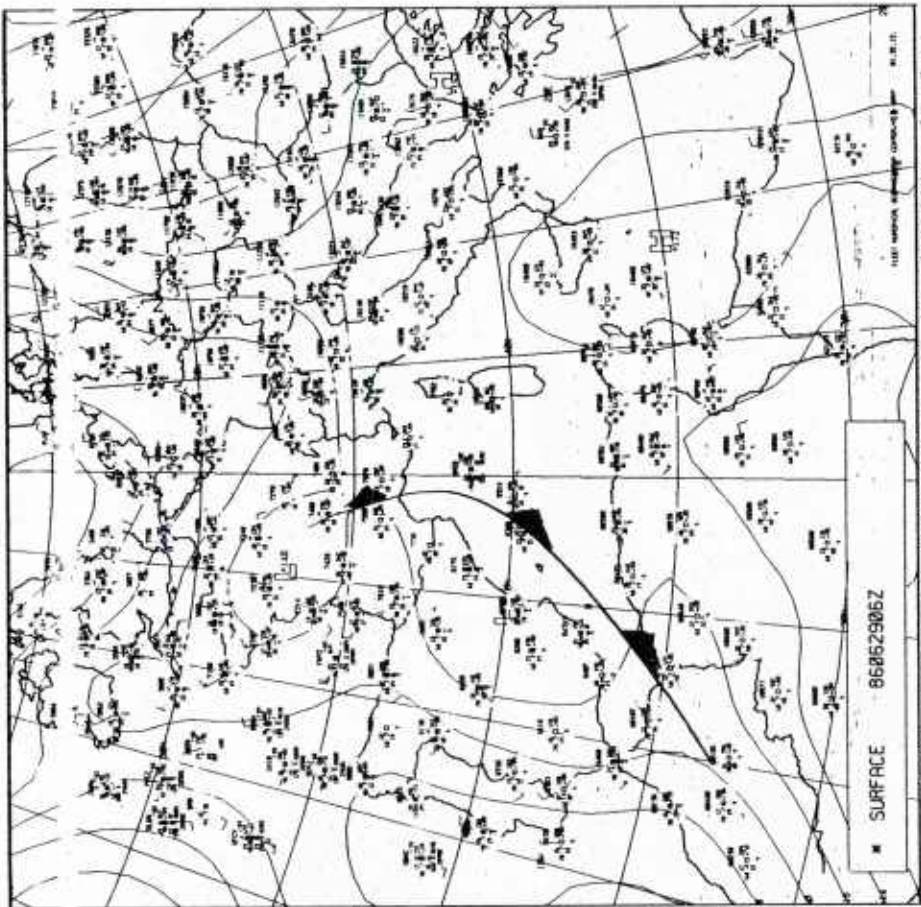


29 JUN 86 0800 GMT VIS

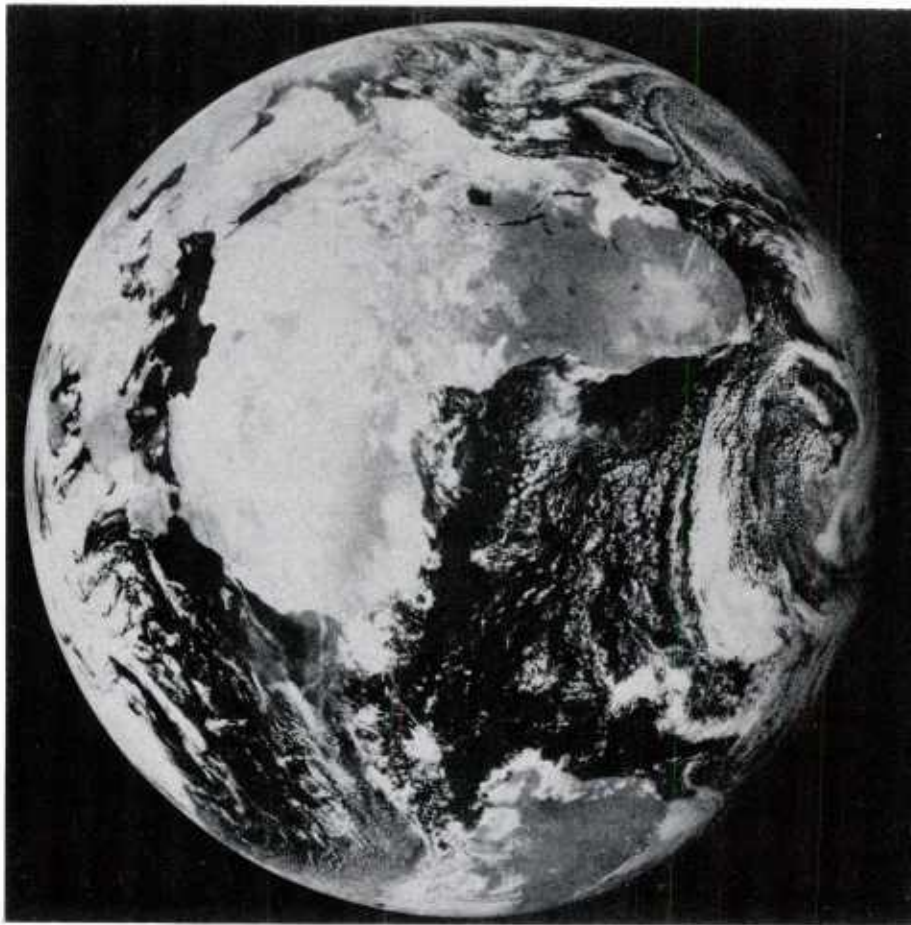
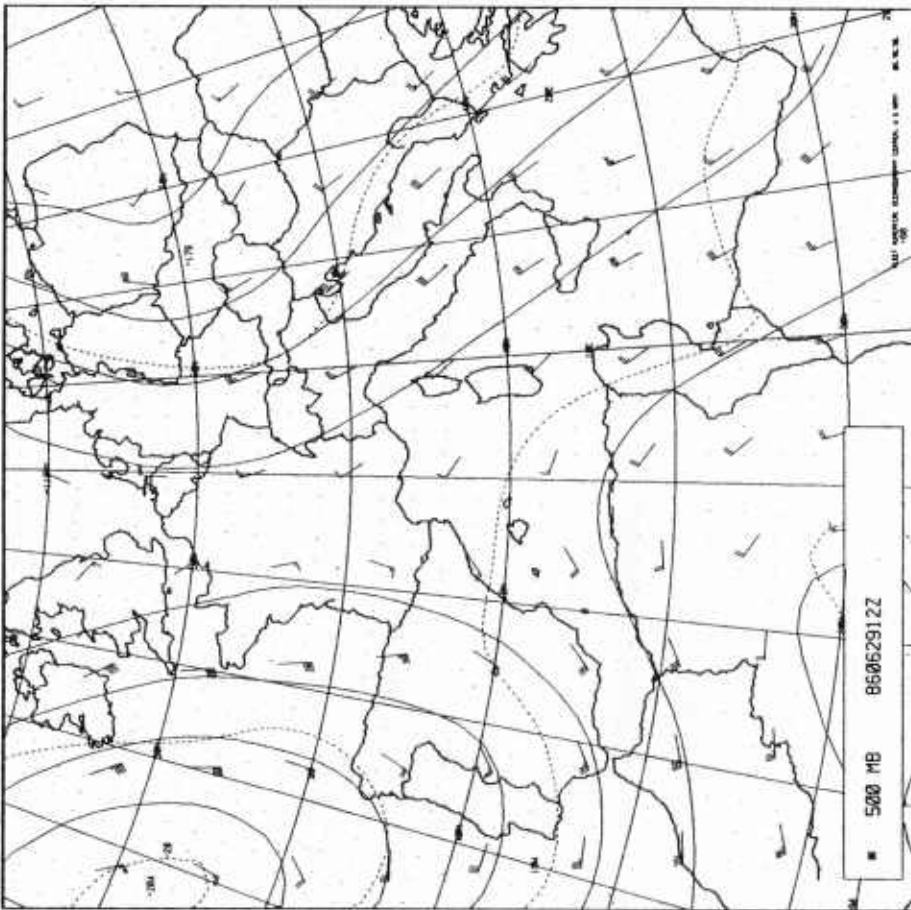




Ridging is still predominate over the West Med except for a slow moving cold front extending over the Alboran Sea. Skies are generally clear in the area.

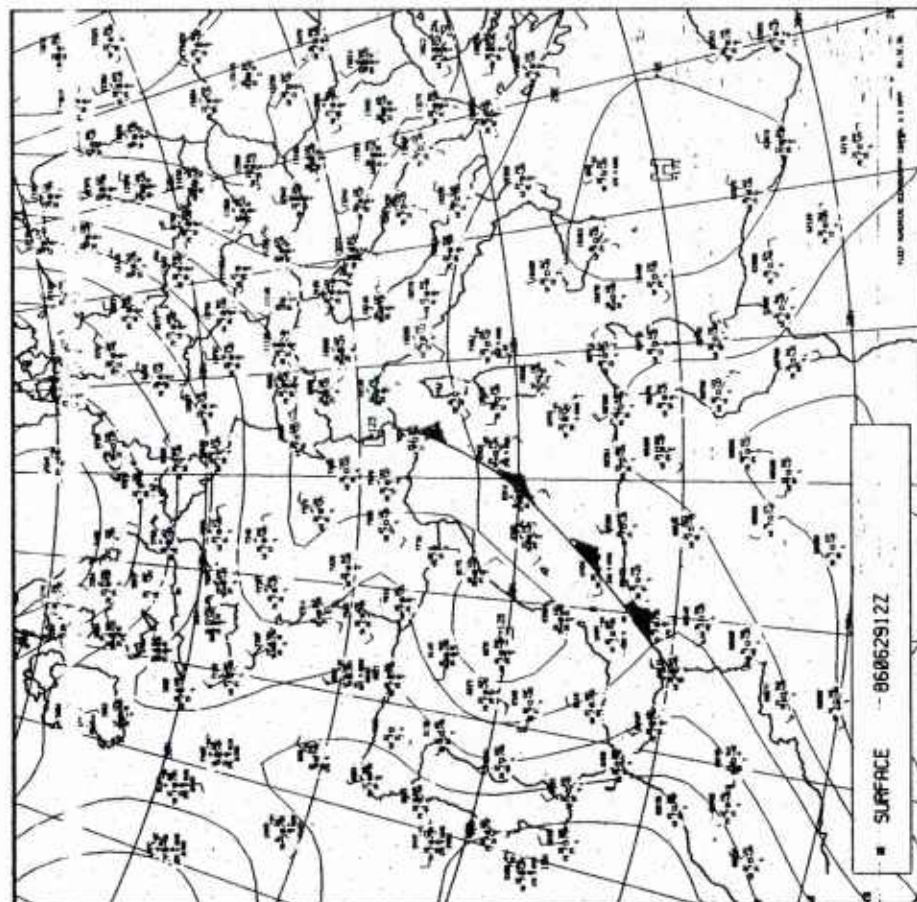


A ship near 41.5N 005E reports .05 km visibility in fog. Light fog is also reported by some coastal stations ringing the West Med. Not one station, including the ship, reports any wind.

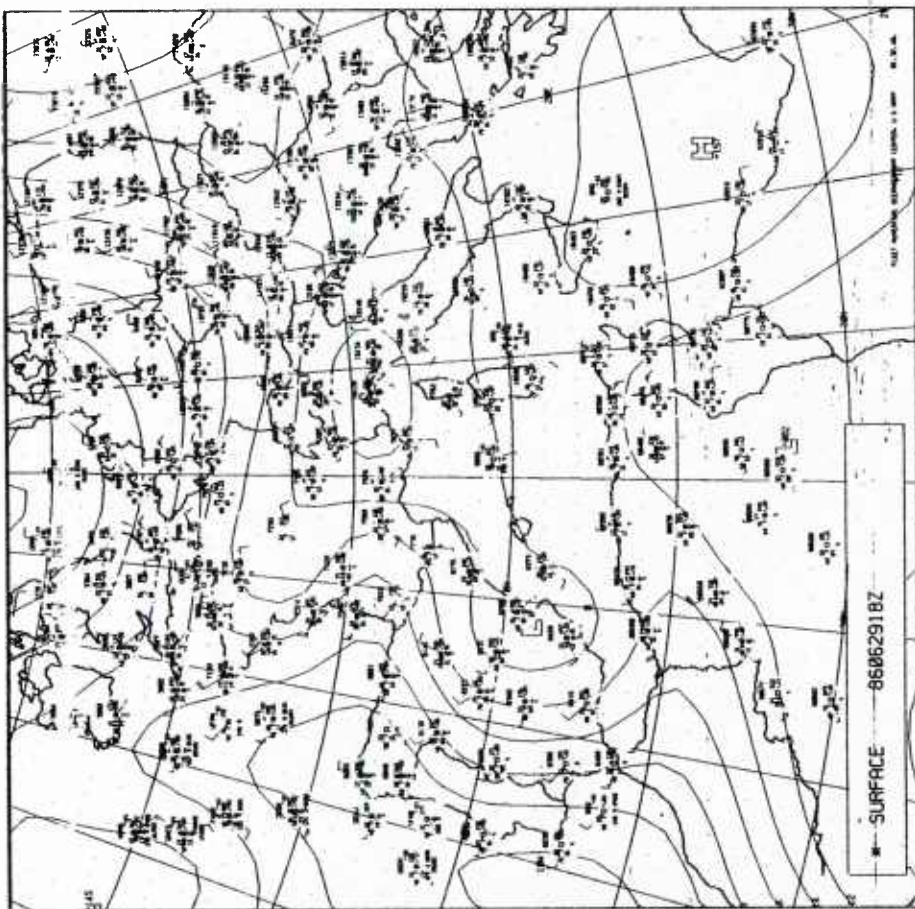


METEOSAT

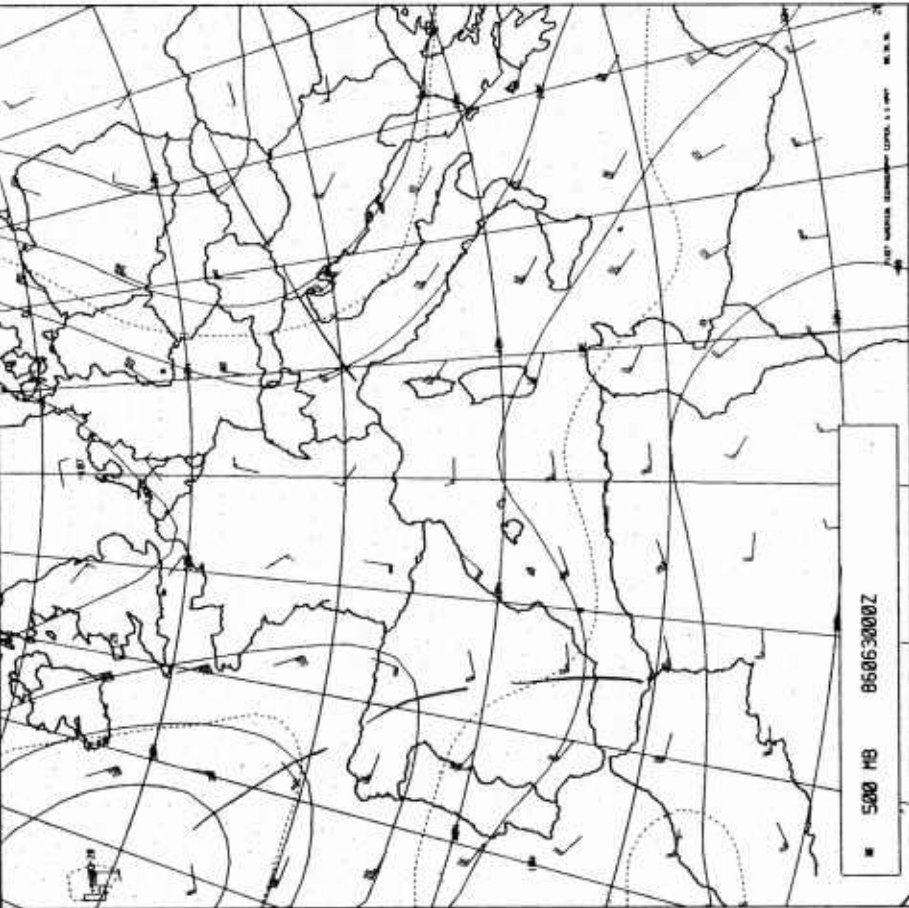
1986 MONTH 6 DAY 29 TIME 1155 GMT (NORTH) CH. VIS 2
 NOMINAL SCRY-RAW DATA SLOT 24 COPYRIGHT - ESA -

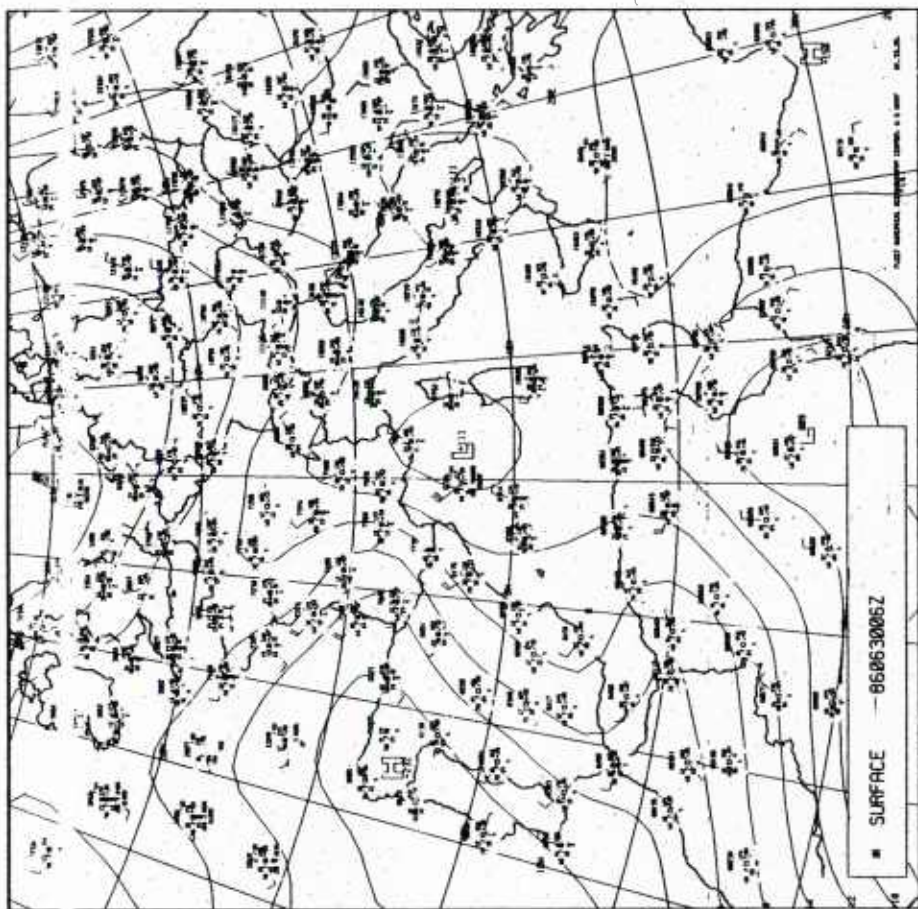
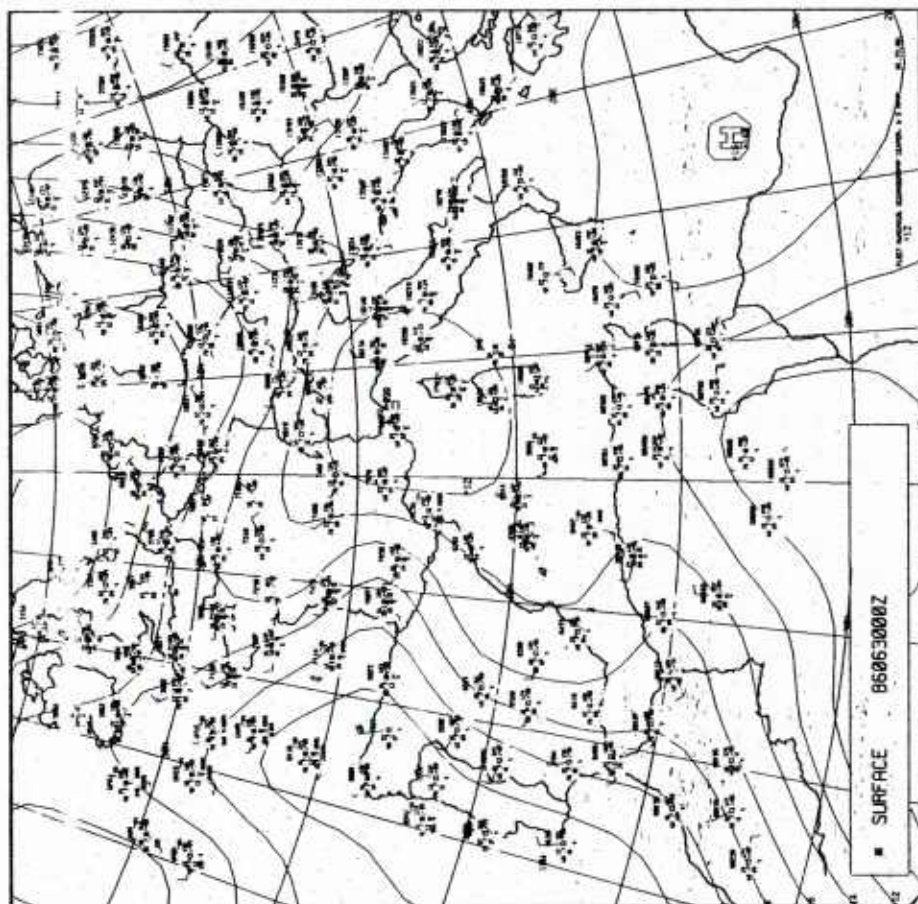


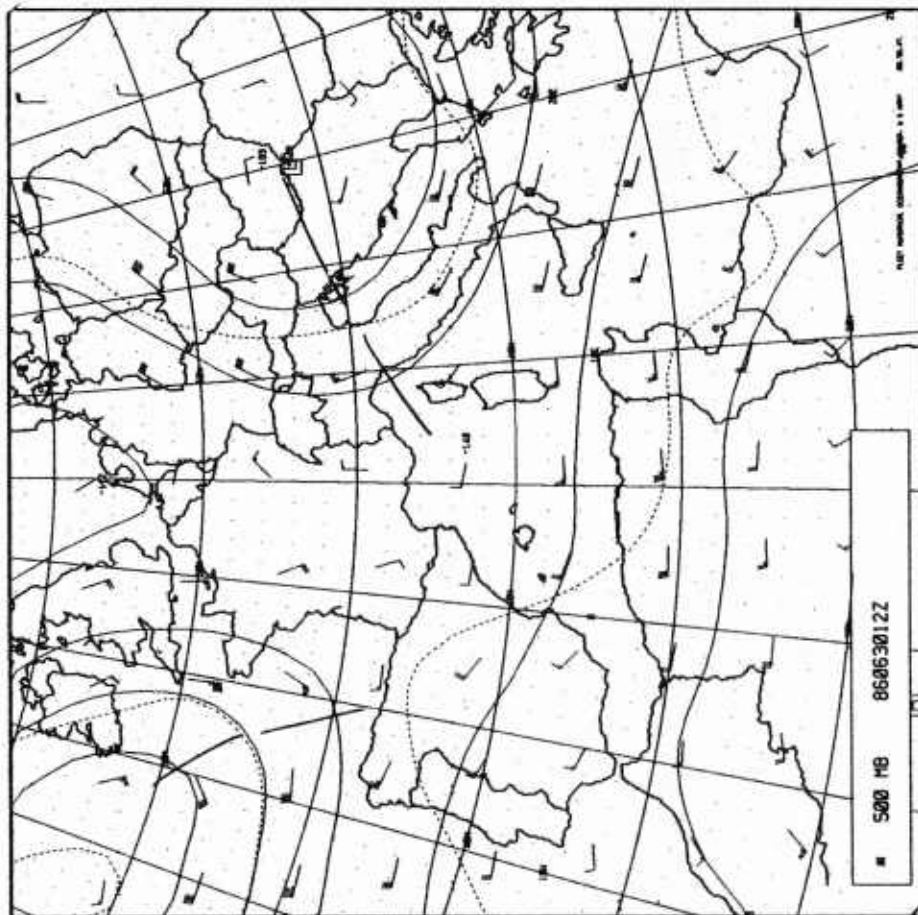
A high pressure cell is located over the central Mediterranean bringing southeasterly flow to the West Med. Fog is reported in the Sicilian channel, on the Spanish coast, the Balearic Islands and Sardinia.



Cyclogenesis is occurring in the Gulf of Genoa. Light fog is again reported in Corsica, Sardinia, and in the Balearic Islands.





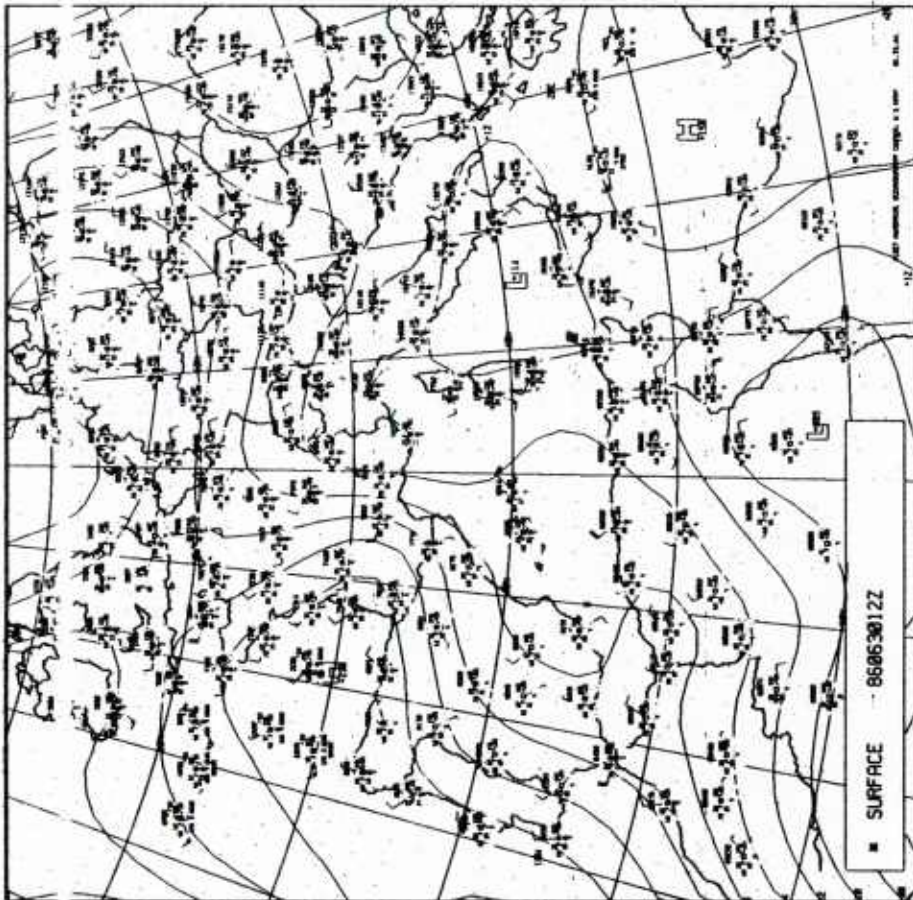


The OMEGA block over Europe causes the windflow over the West Med to be westerly as the flow undercuts the block.

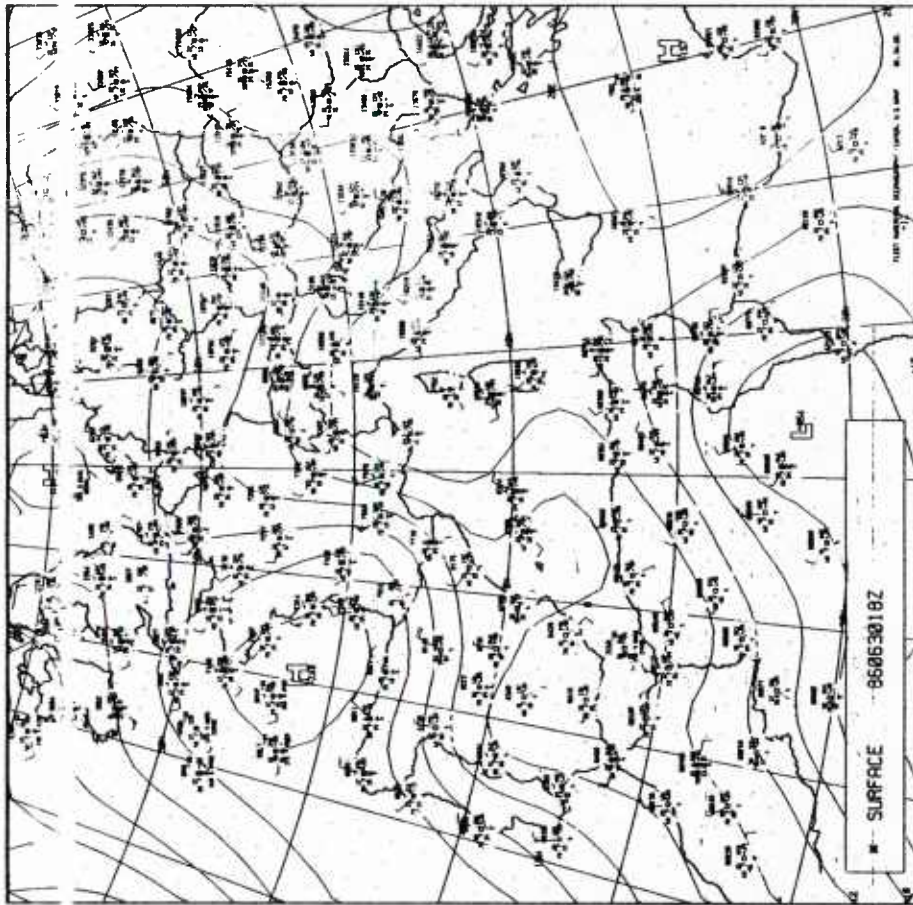


METEOSAT

1986 MONTH 6 DAY 30 TIME 1155 GMT (NORTH) CH. VIS 2
NOMINAL SCAN/RAW DATA SLOT 24 COPYRIGHT - ESA



A 30 kt wind is reported at the southern end of the Rhone Valley indicating a possible Mistral. If a line is drawn due south from this report, it can be seen that other stations report higher wind speeds than their surrounding stations, indicating a windstream extending south from the Rhone Valley.



A high builds over the Bay of Biscay enhancing the Mistral. A ship near 43N 05E reports a wind speed of 35 kts and 20 km visibility.

APPENDIX B

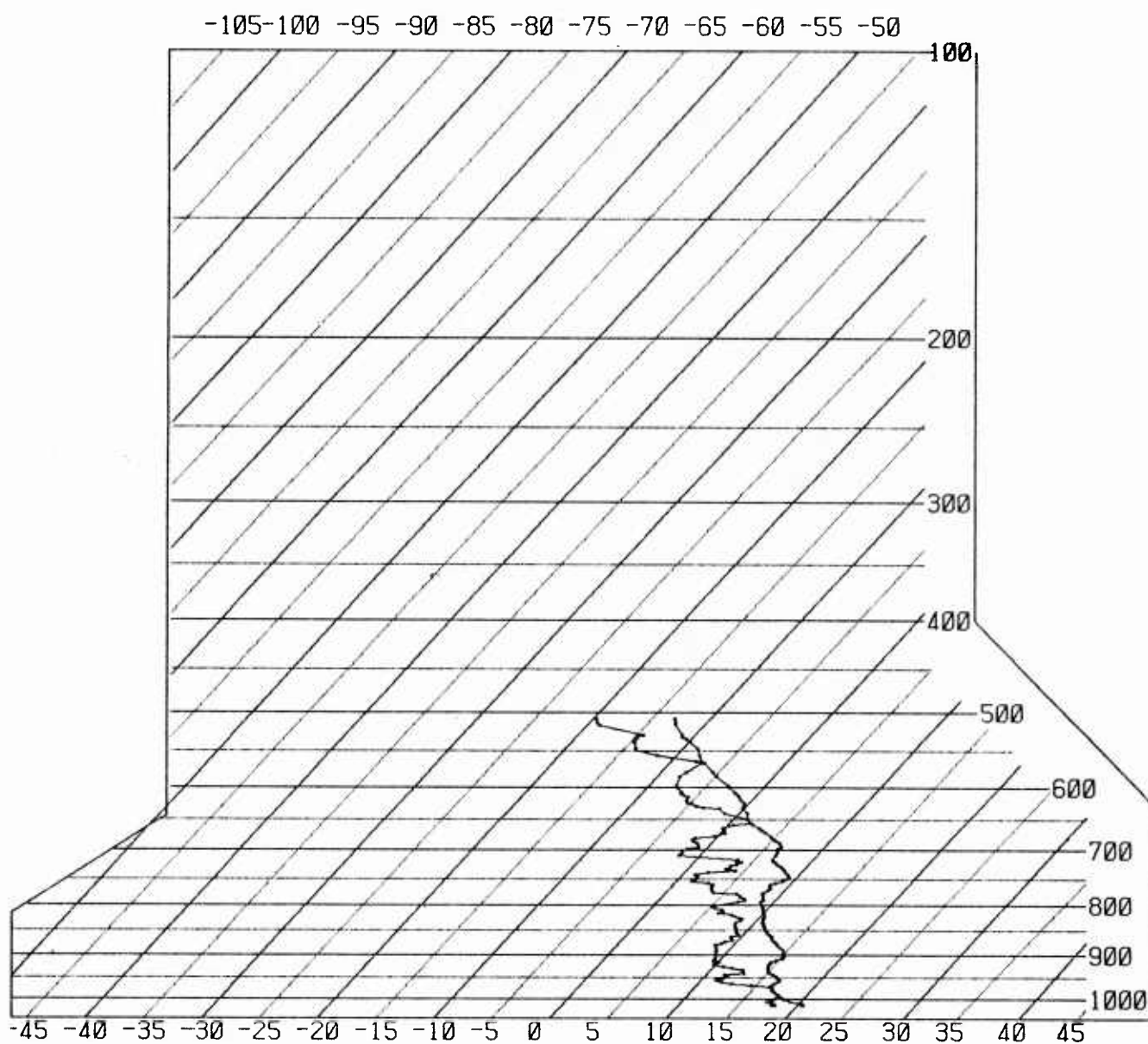
SKEW T-LOG P DIAGRAMS AND SURFACE OBSERVATIONS

Appendix B consists of Skew T-Log P Diagrams plotted during raw data obtained during two cruises aboard the USNS Lynch and one cruise aboard the USS America. Surface observations taken during the cruises are displayed after the soundings.

The following abbreviations are used in the surface observations:

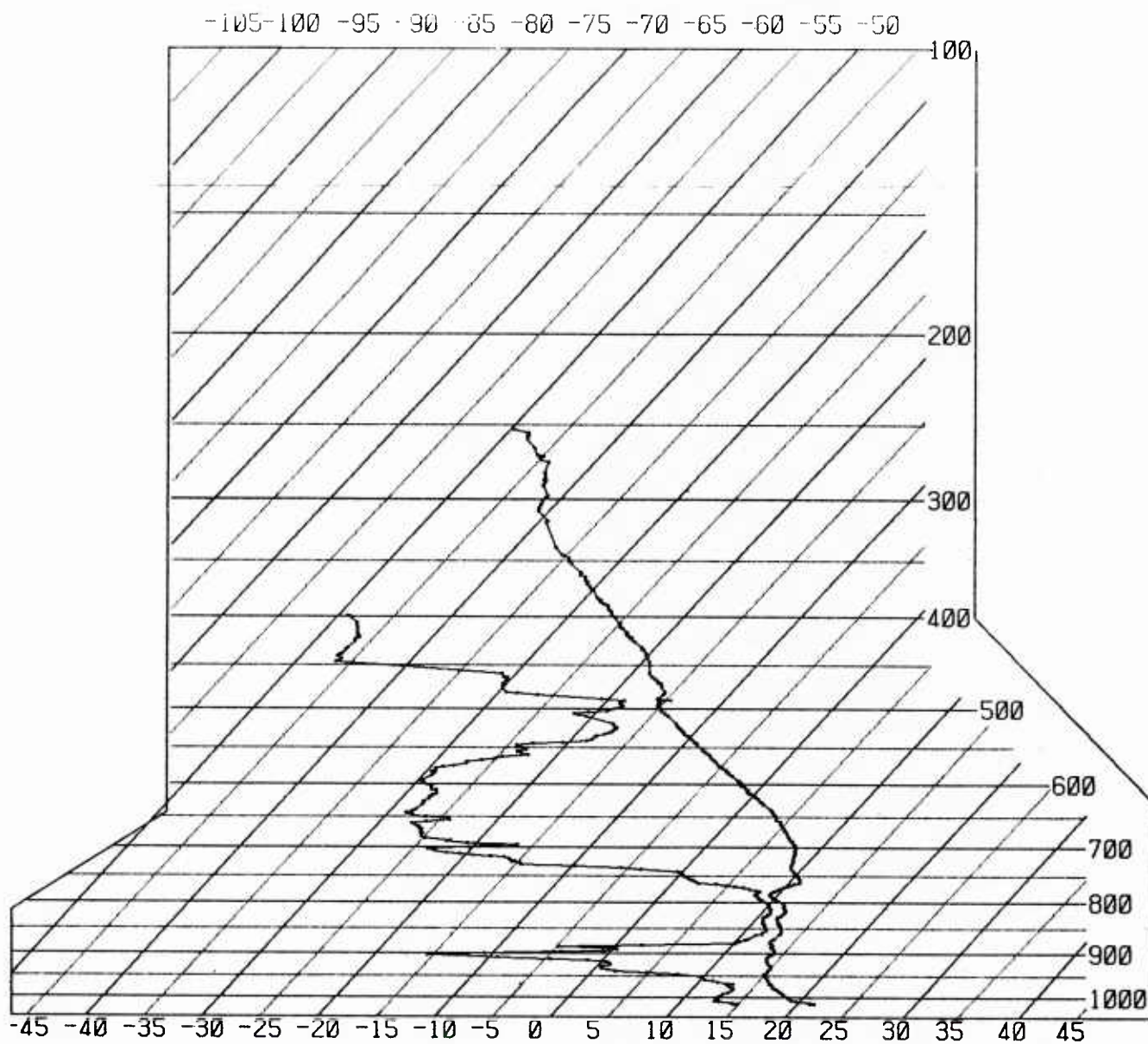
H	haze
F	fog
RW	light rain showers
DTG	date/time group

Cloud heights are given in hundreds of feet, i.e., 20 = 2000 ft. Meteorological ranges are those measured by HSS visibility meters, except where noted.



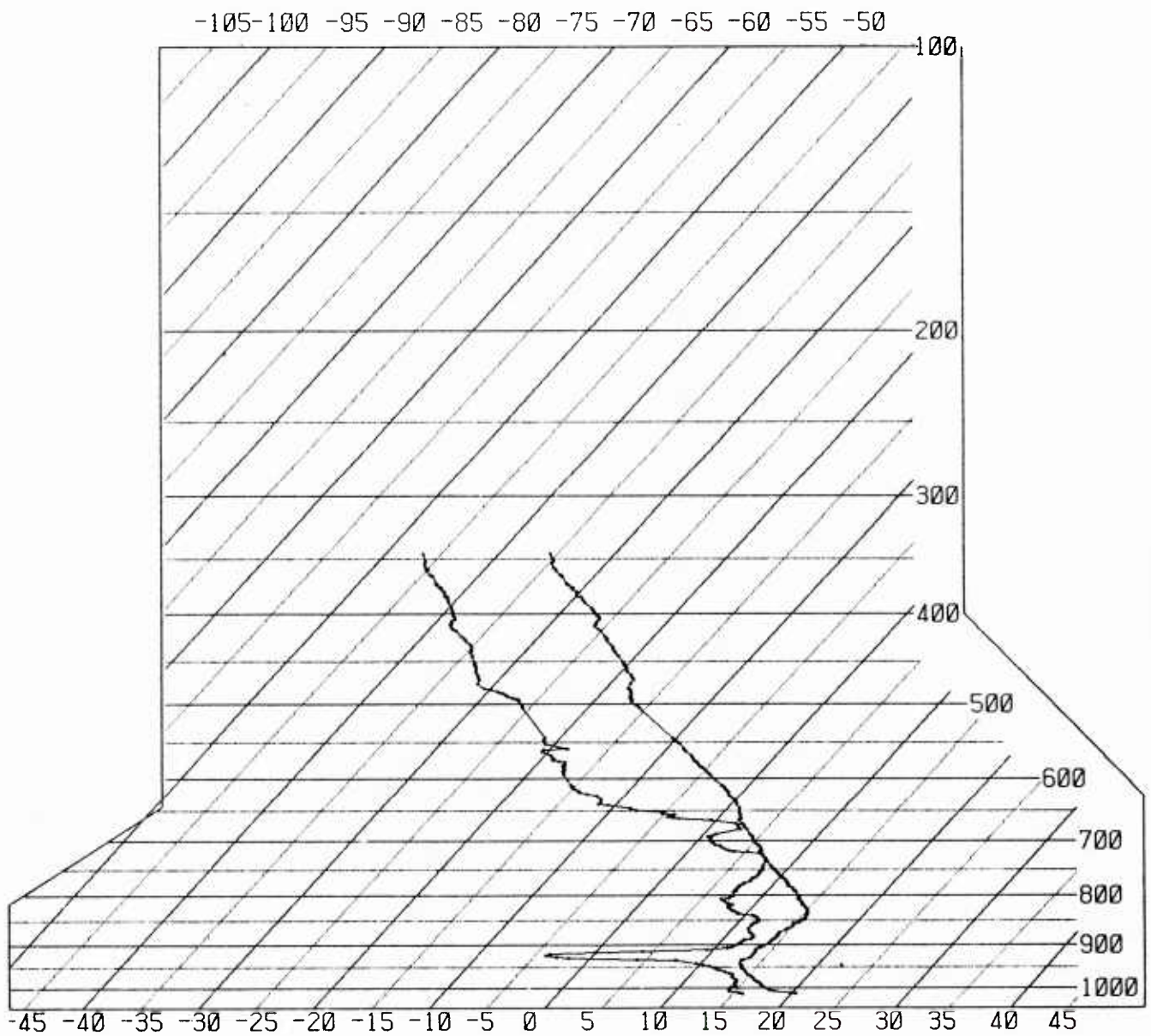
38.4N, 000.4E 01 JUN 86 1810Z

USNS LYNCH 1ST CRUISE



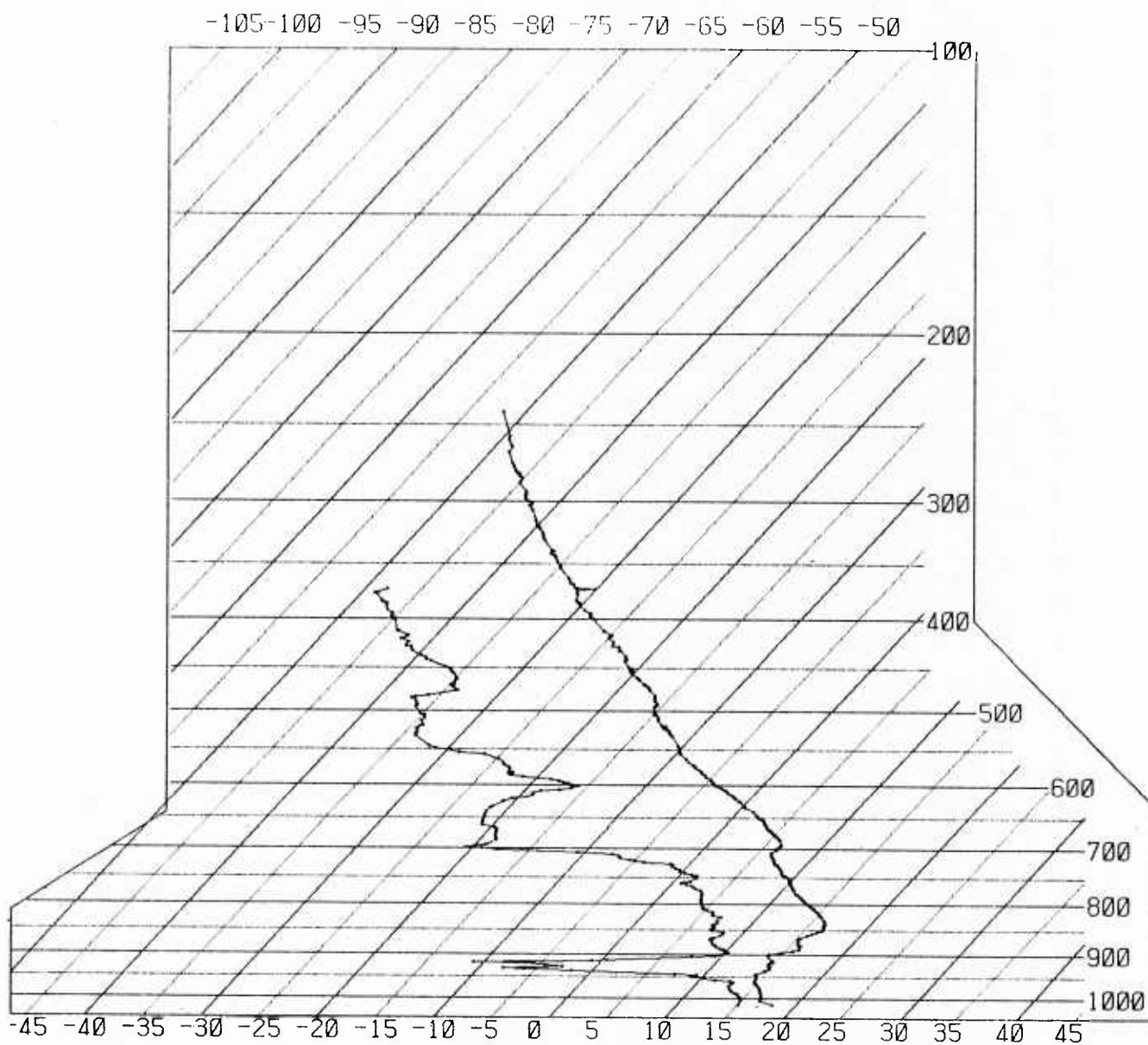
37.3N, 001.5E 02 JUN 86 0950Z

USNS LYNCH 1ST CRUISE



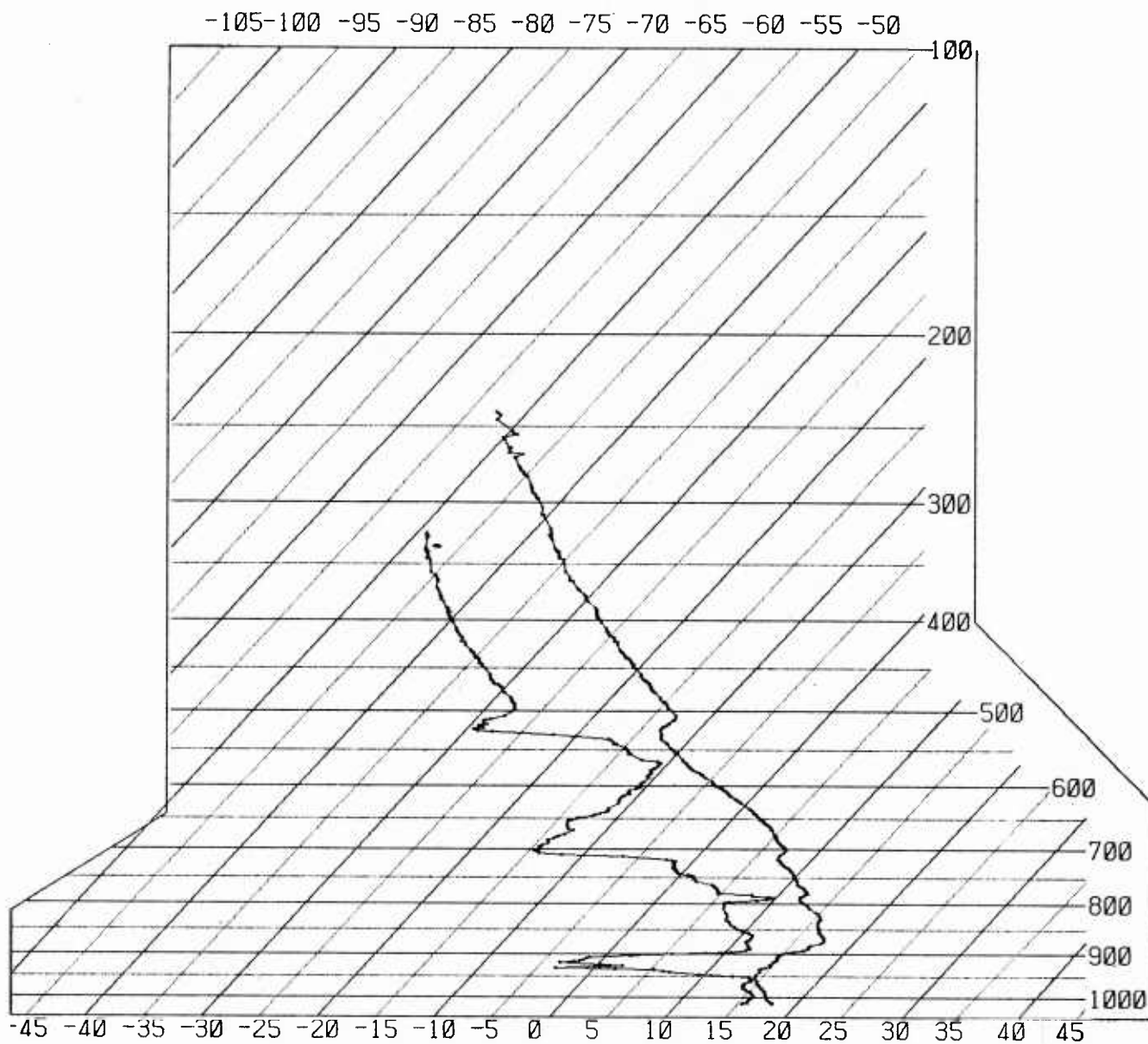
37.1N,001.2E 02 JUN 86 1548Z

USNS LYNCH 1ST CRUISE



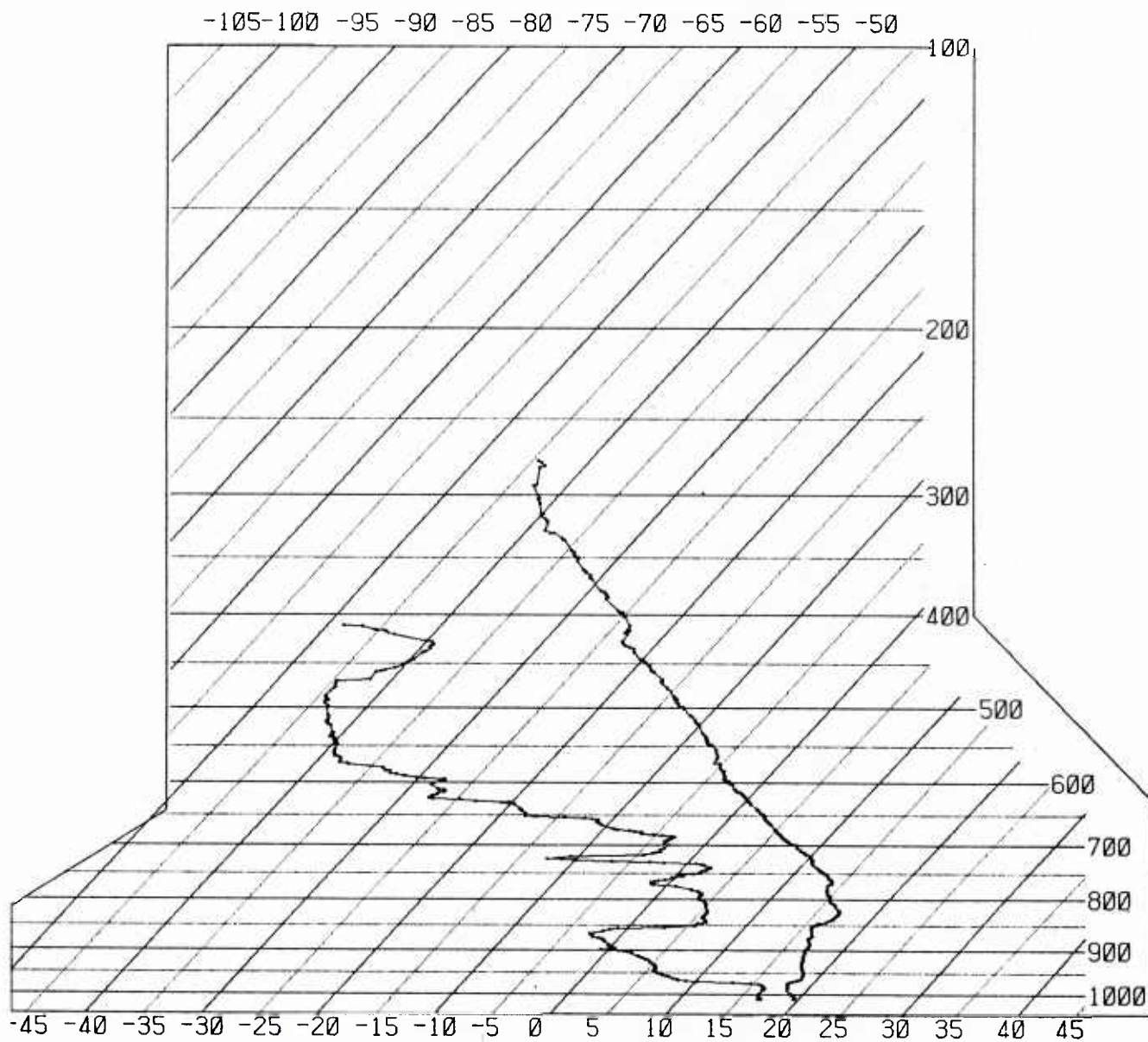
36.4N, 001.2E 02 JUN 86 2203Z

USNS LYNCH 1ST CRUISE



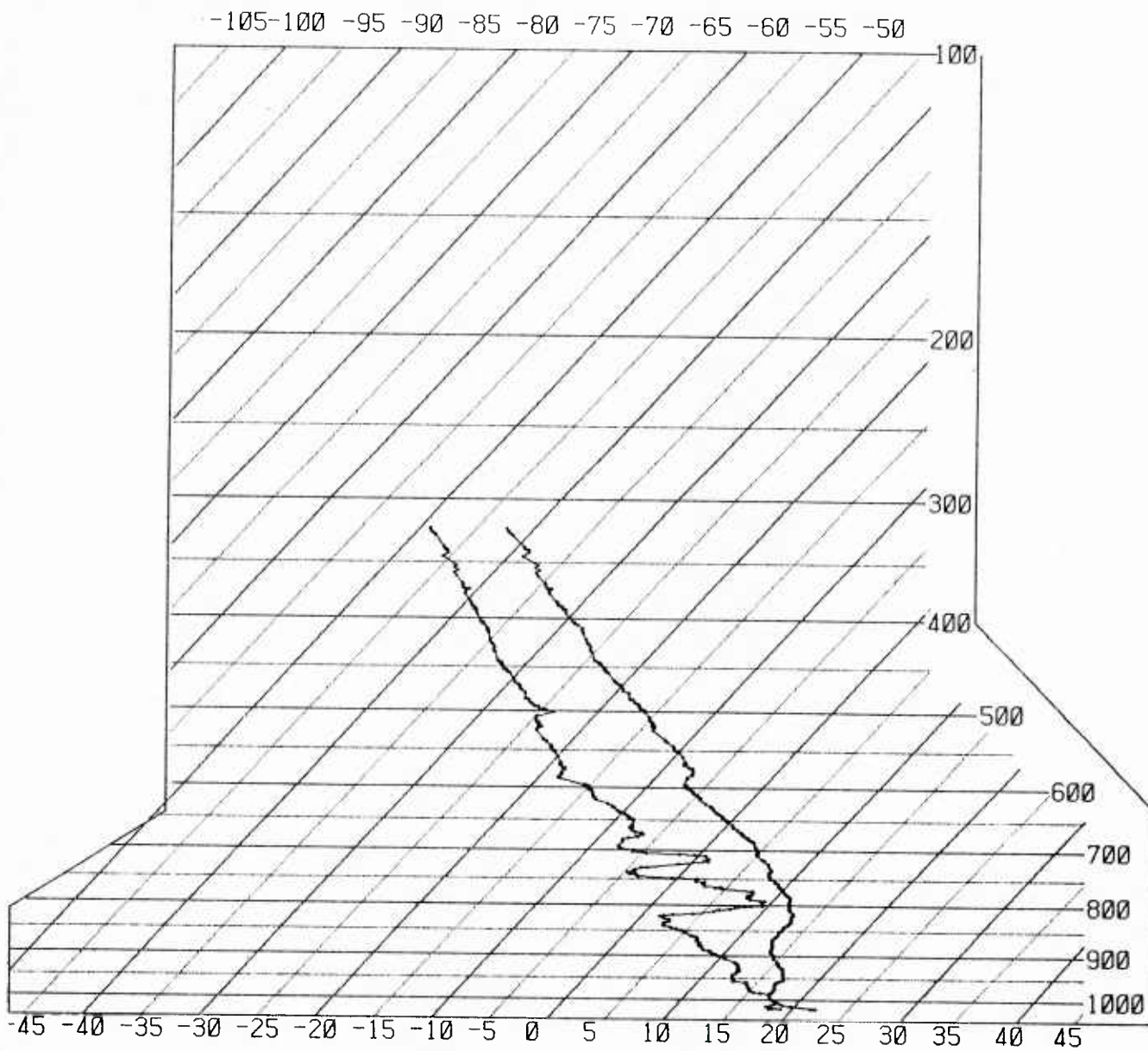
36.4N, 001.5E 03 JUN 86. 0140Z

USNS LYNCH 1ST CRUISE



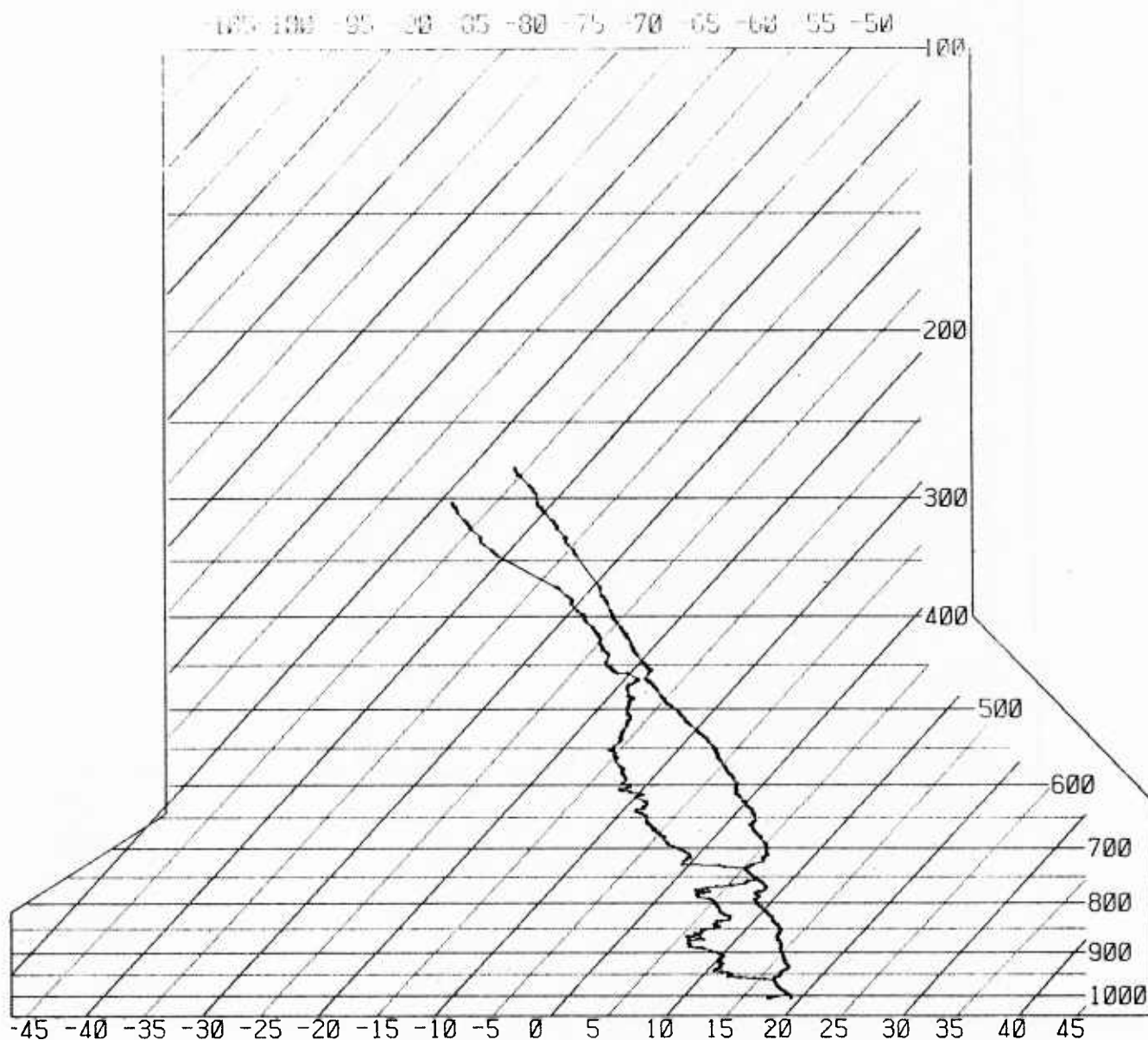
37.0N, 003.0E 04 JUN 86 0530Z

USNS LYNCH 1ST CRUISE



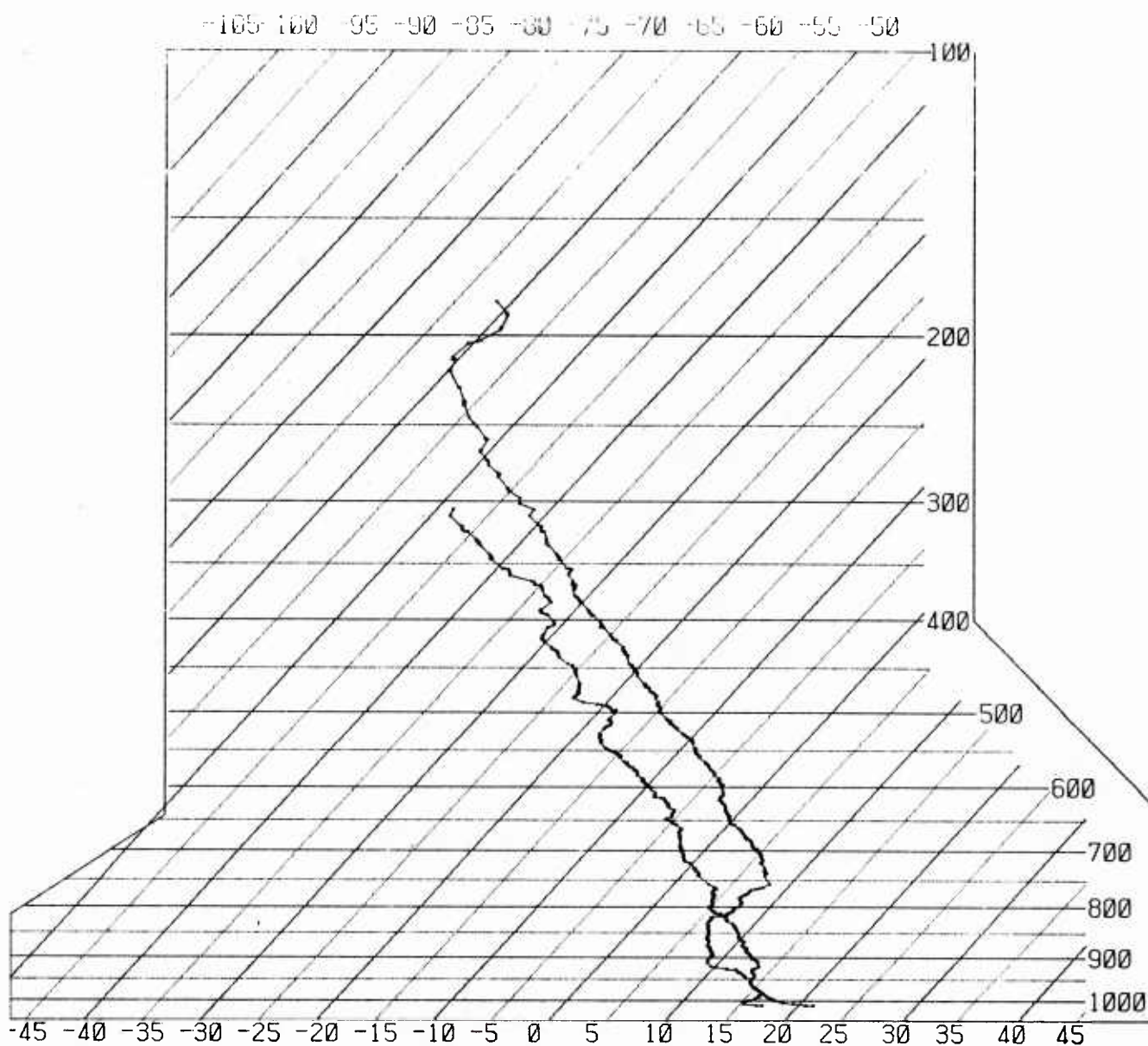
37.5N,003.0E 04 JUN 86 1403Z

USNS LYNCH 1ST CRUISE



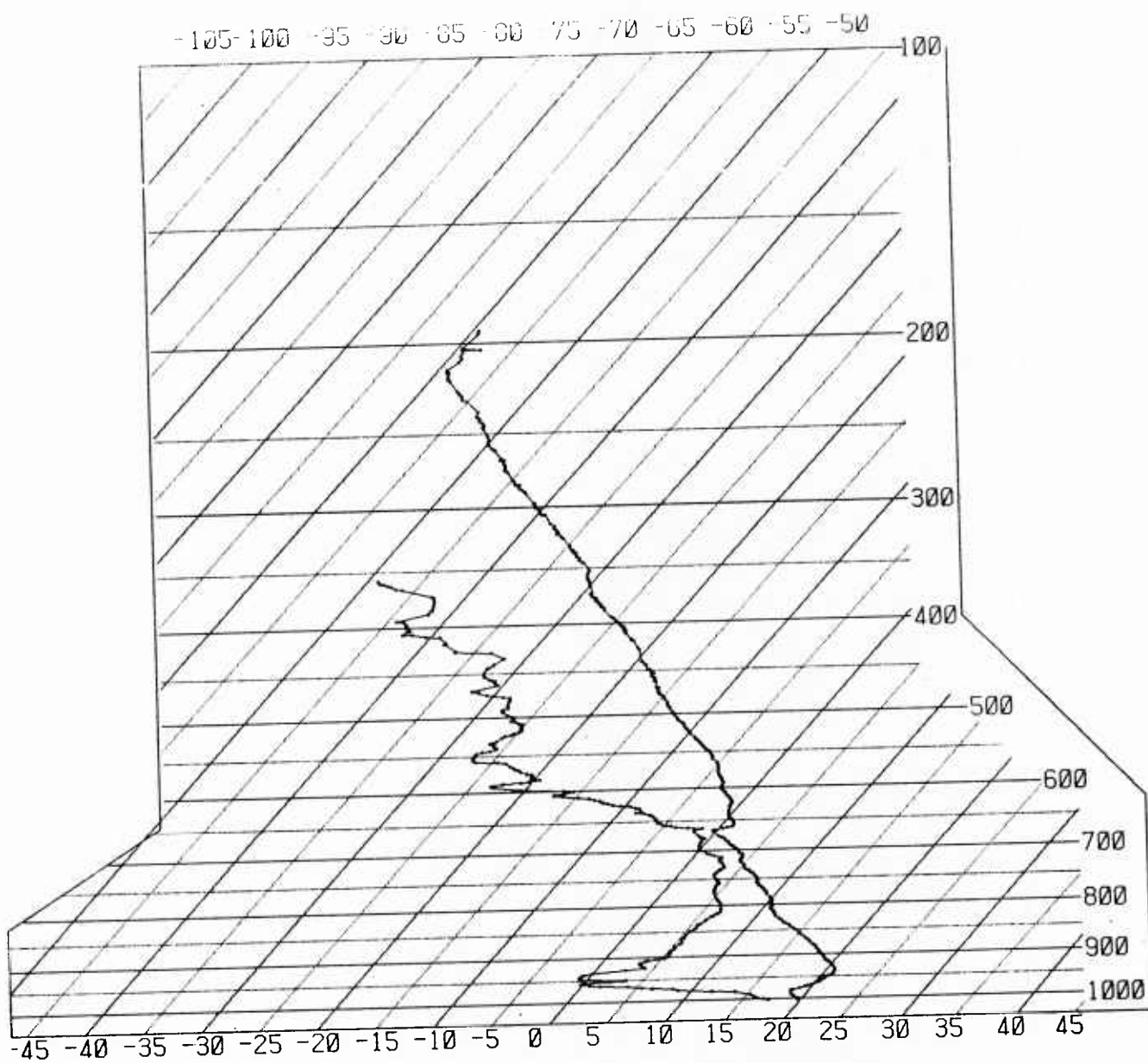
35.5N, 002.5E 05 JUN 86 0233Z

USNS LYNCH 1ST CRUISE

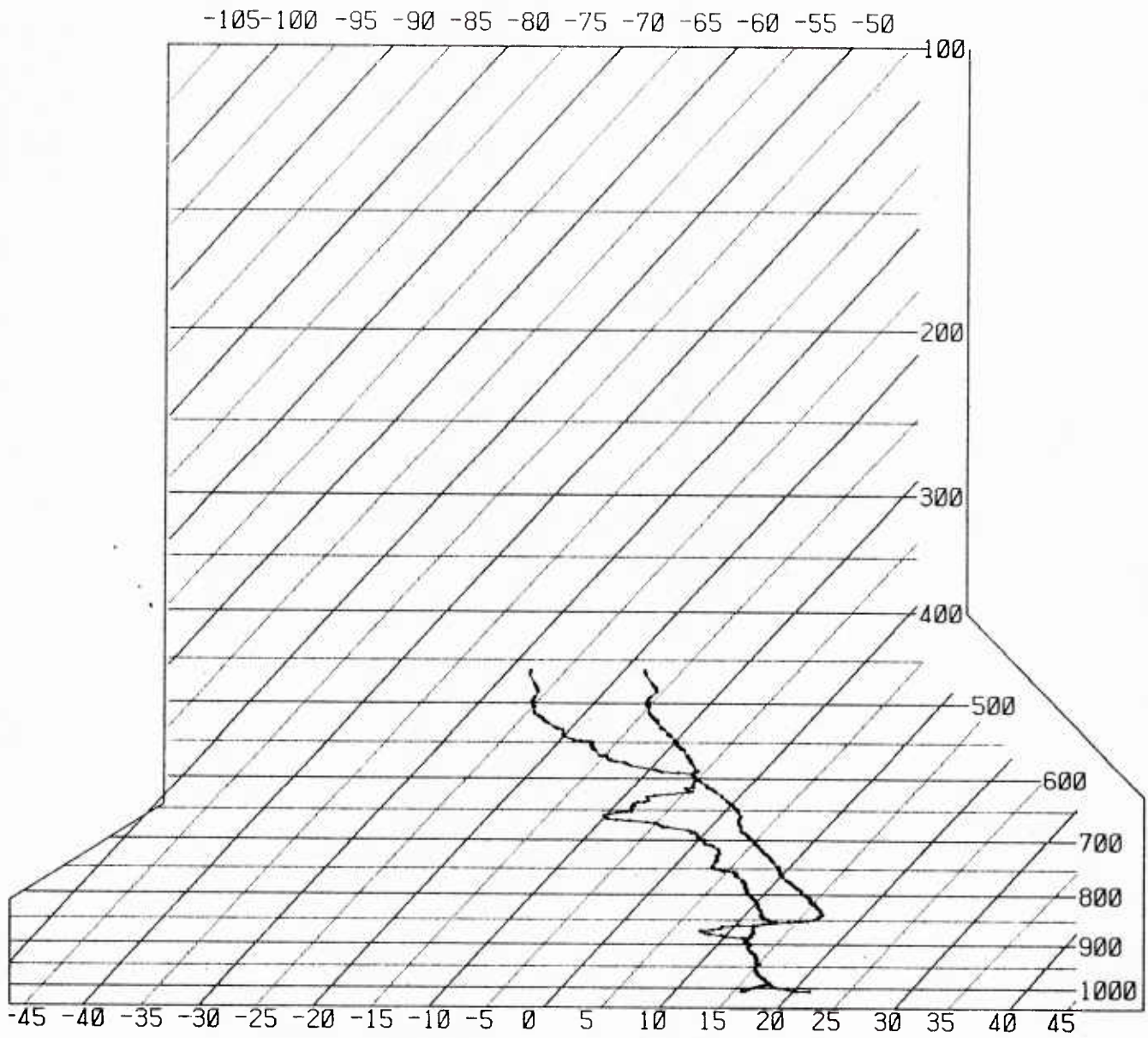


39.0N,003.4E 05 JUN 86 1150Z

USNS LYNCH 1ST CRUISE

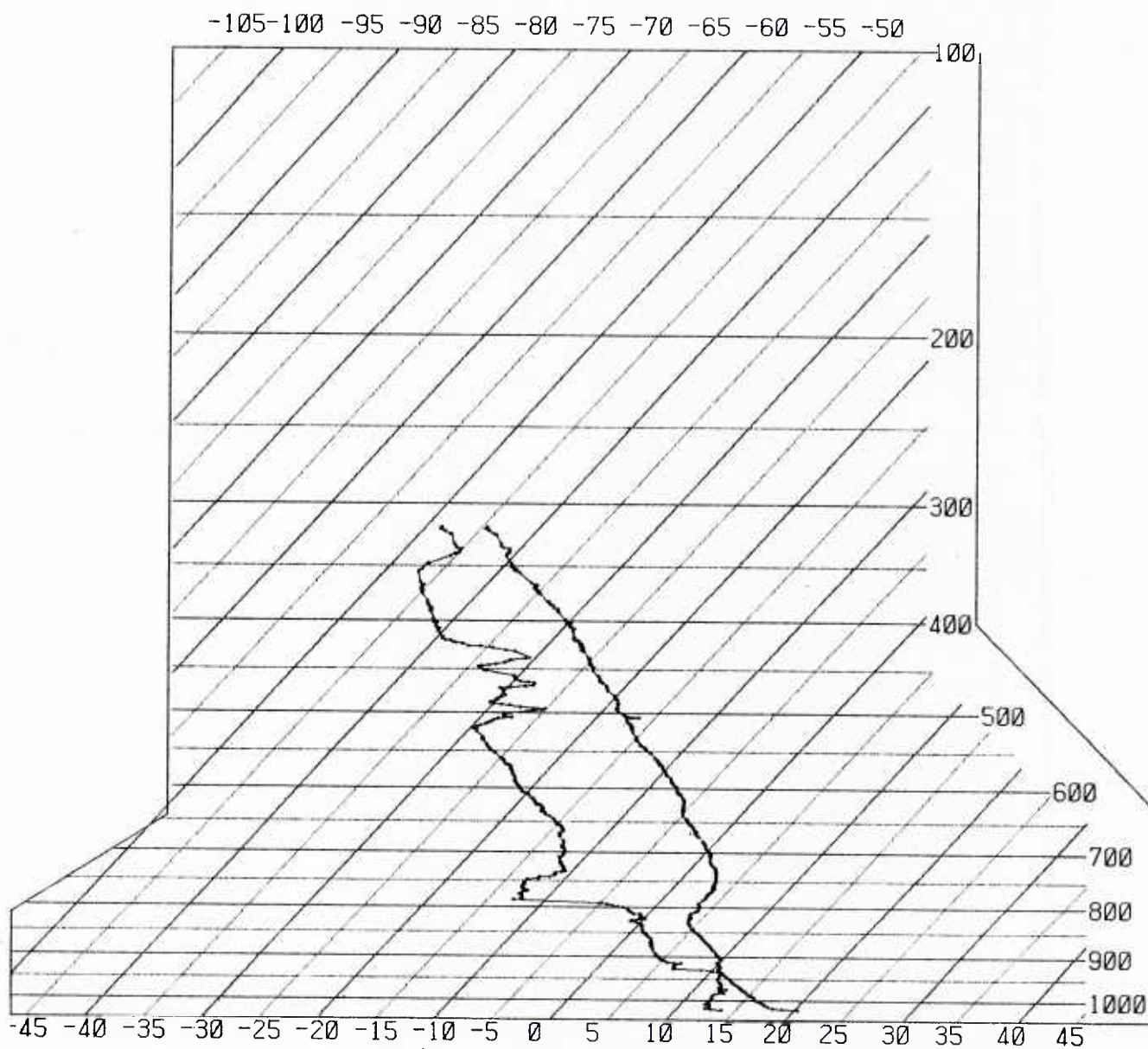


USNS LYNCH 1ST CRUISE



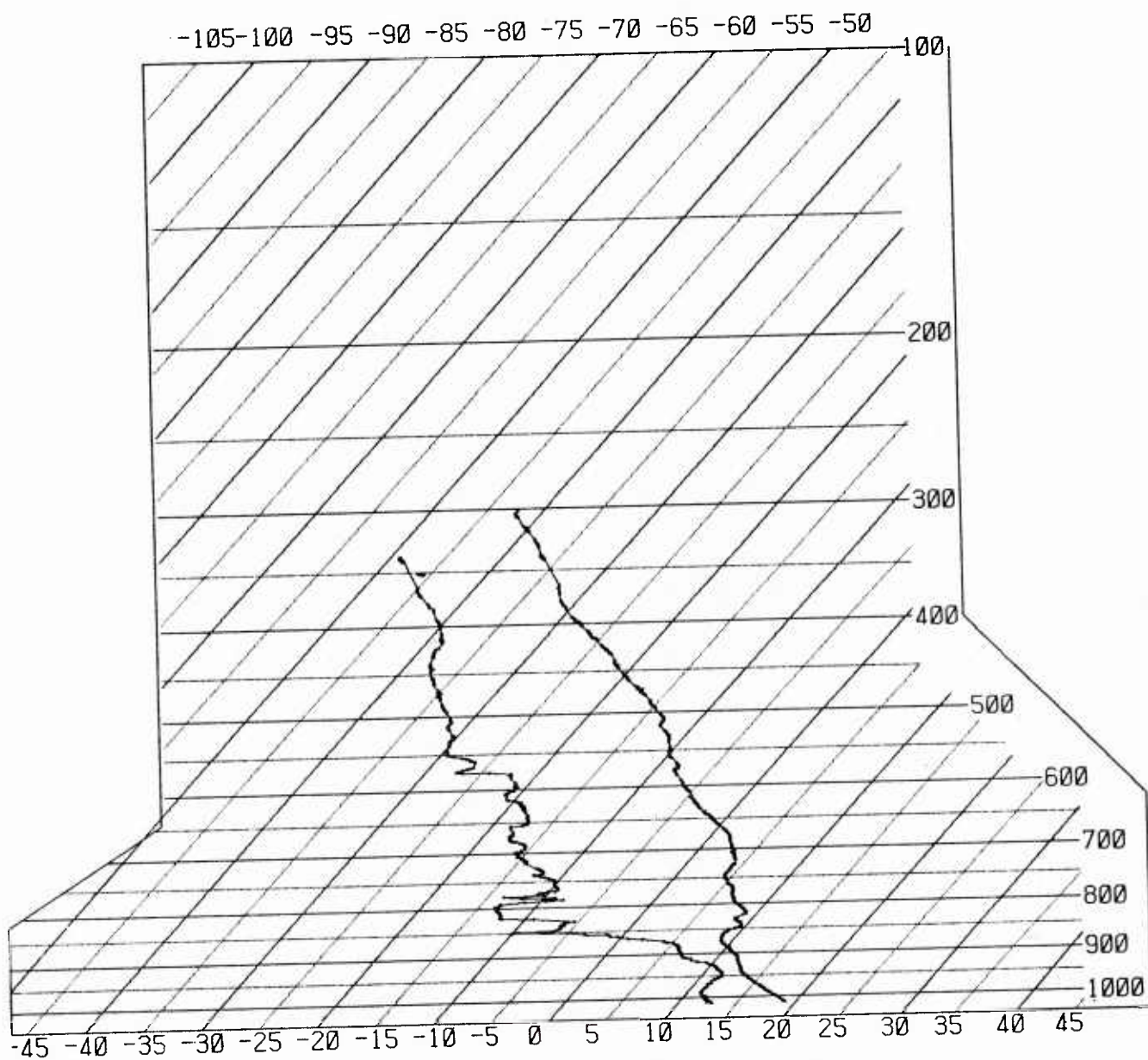
36.5N, 005.2E 06 JUN 86 1456Z

USNS LYNCH 1ST CRUISE



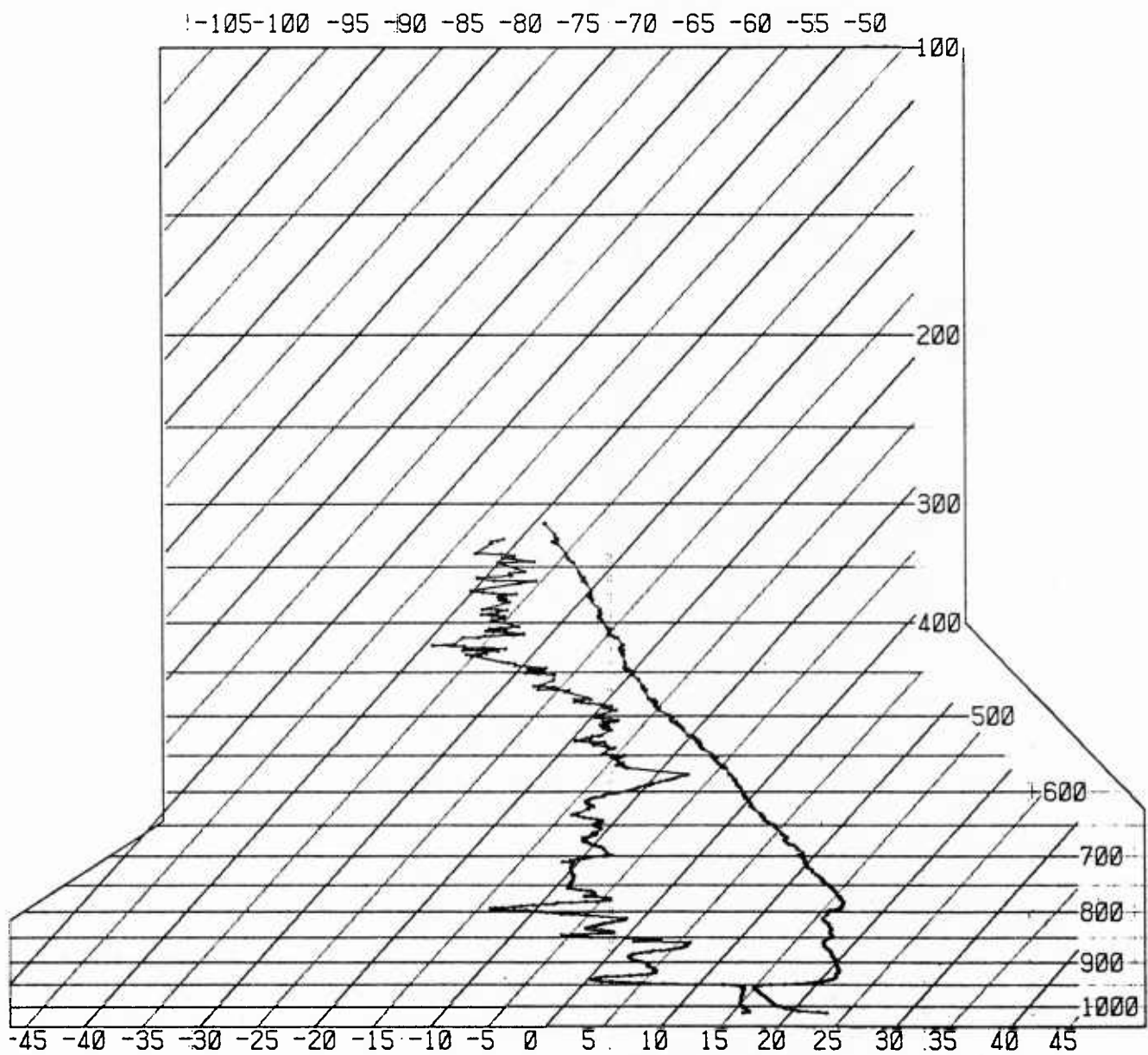
39.0N, 007.5E 08 JUN 86 1410Z

USNS LYNCH 1ST CRUISE

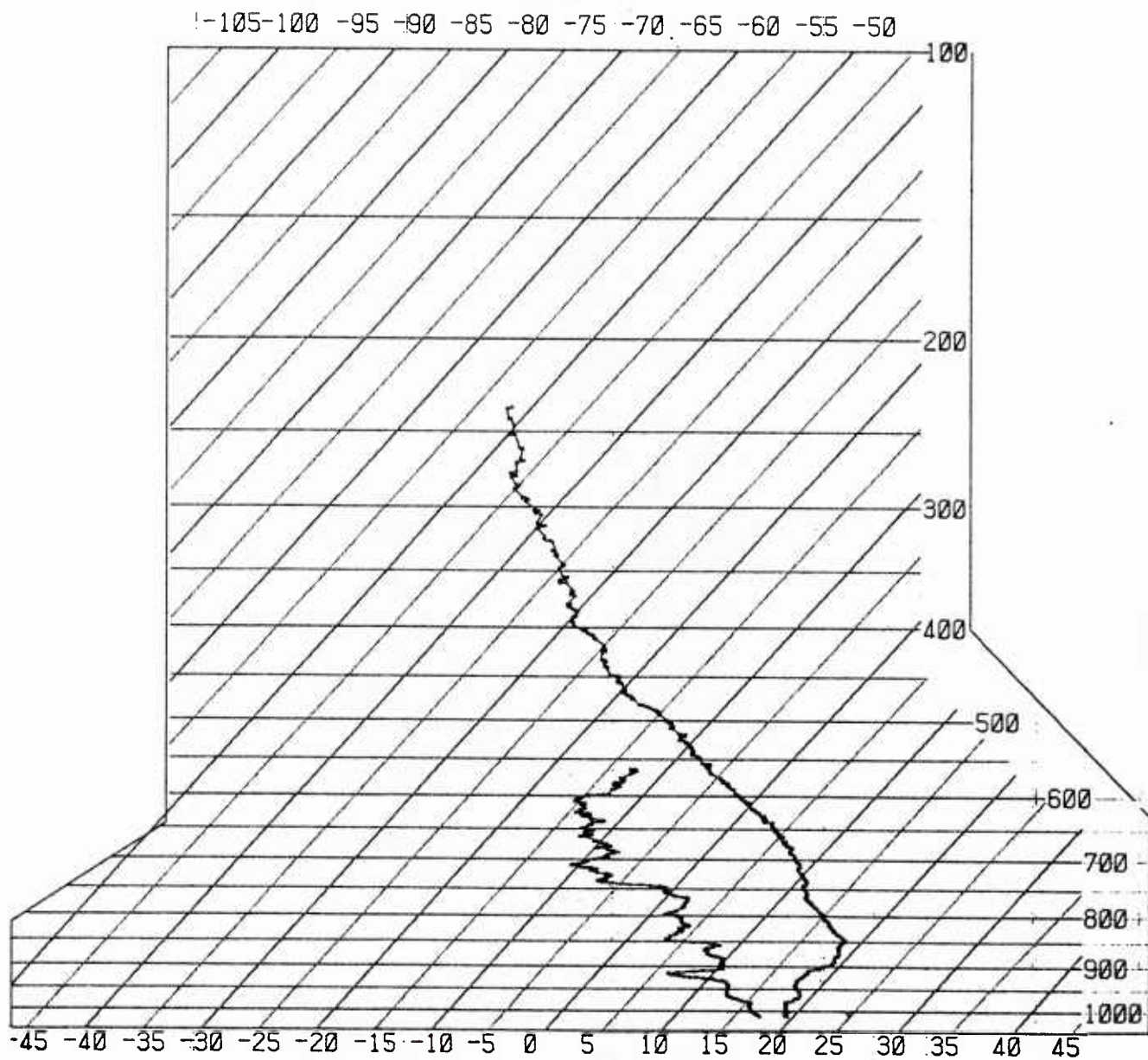


38.4N, 006.2E 09 JUN 86 0046Z

USNS LYNCH 1ST CRUISE

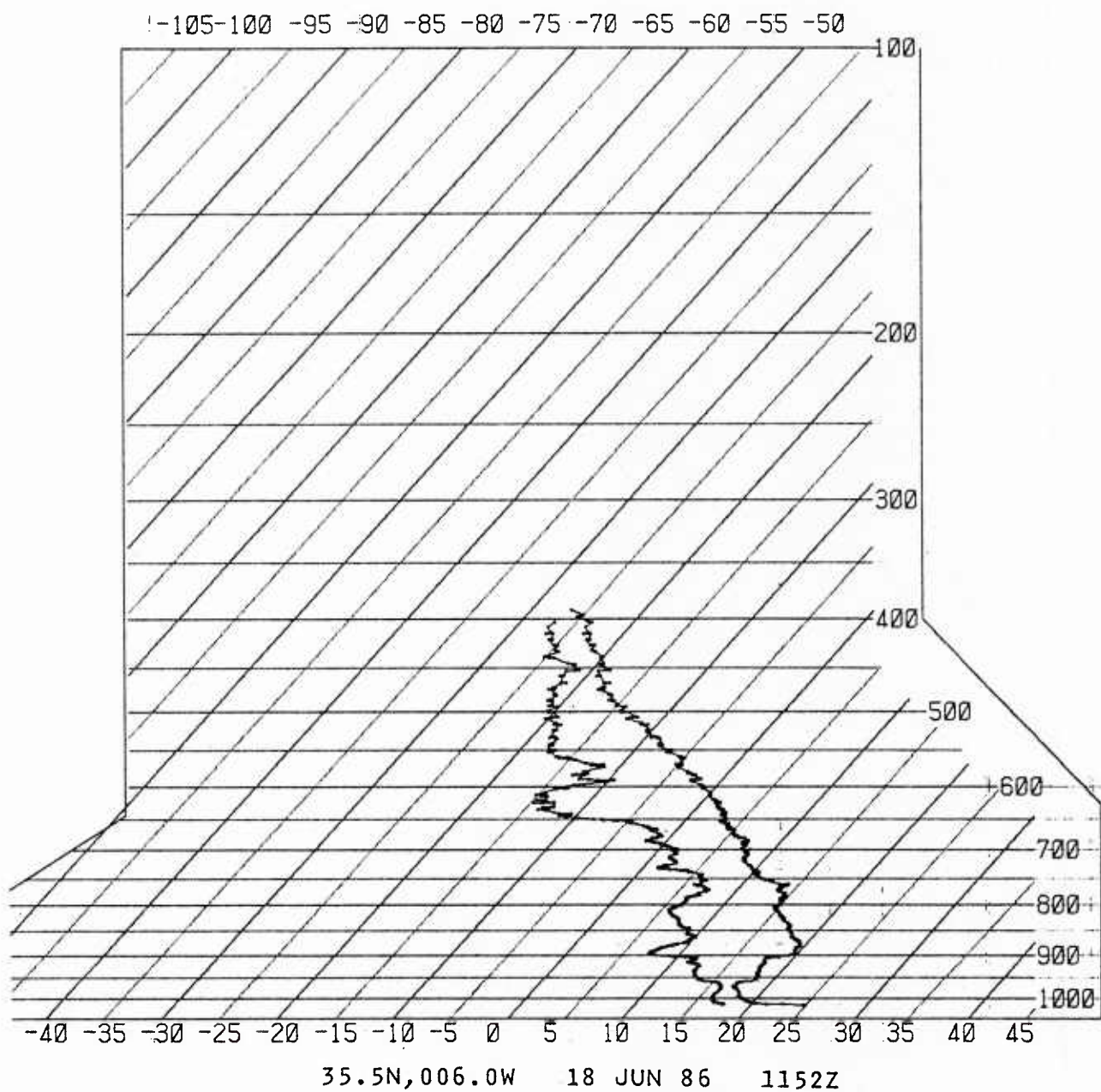


USNS LYNCH 2ND CRUISE

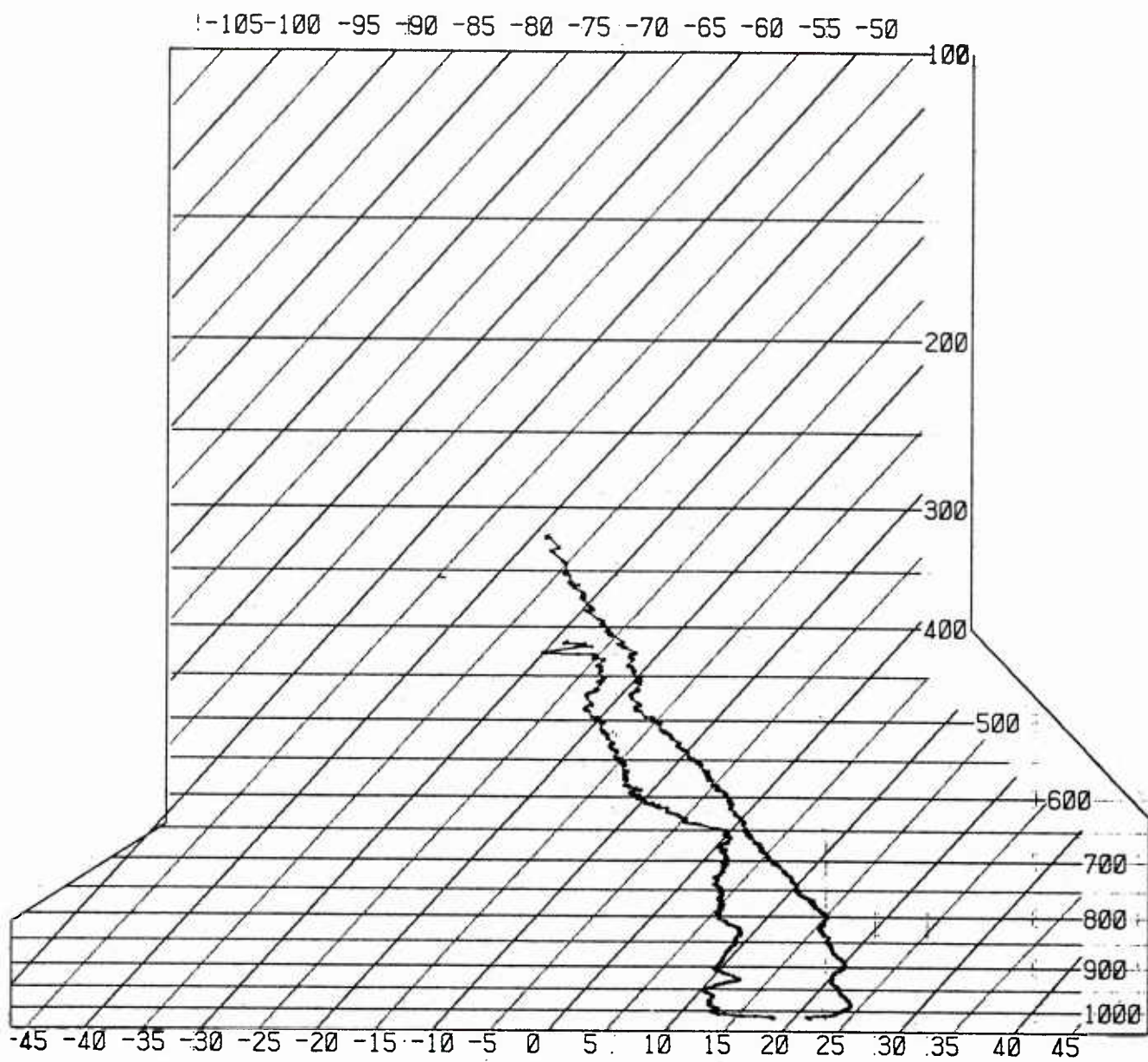


36.0N, 005.5W 18 JUN 86 0553Z

USNS LYNCH 2ND CRUISE

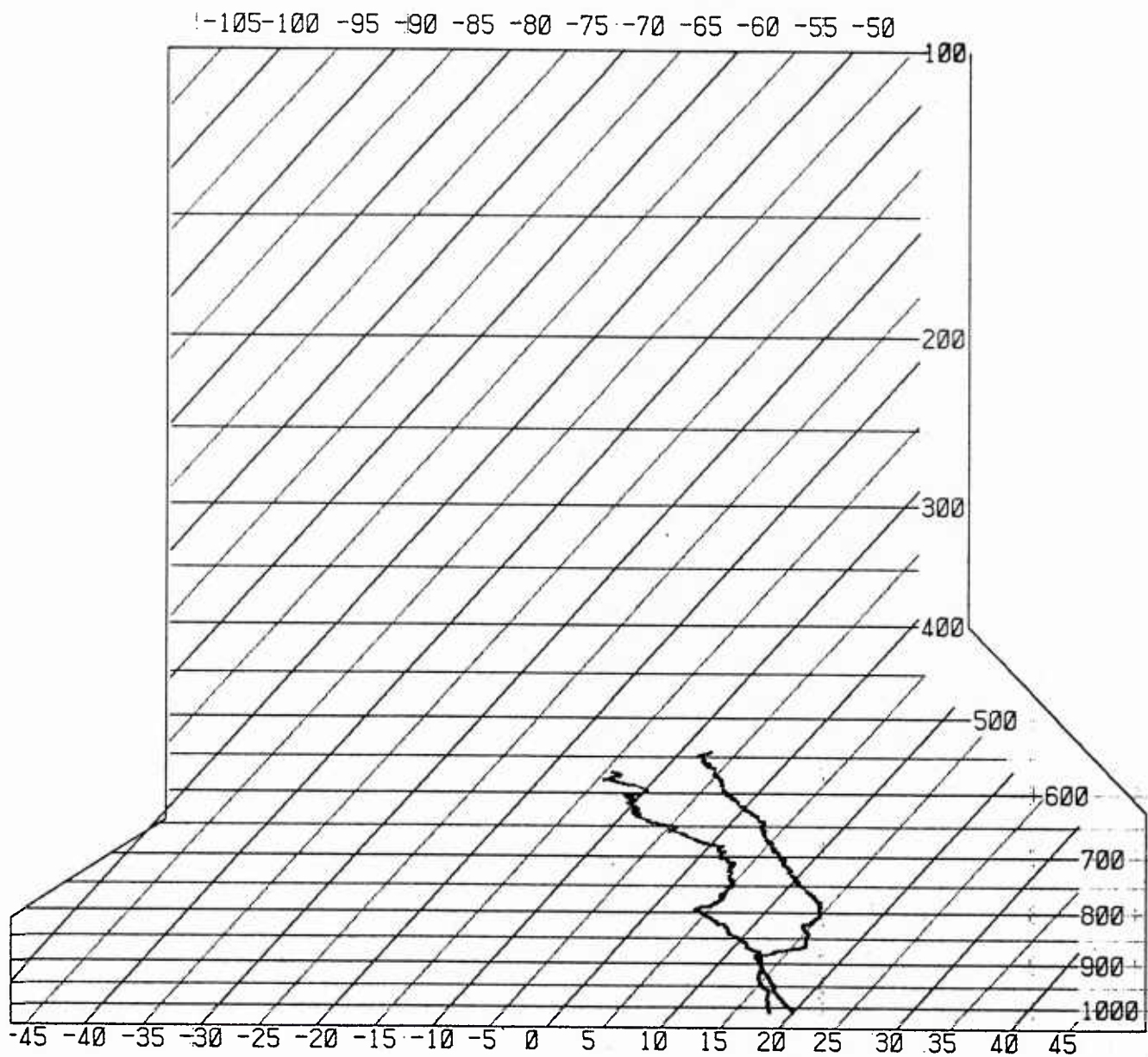


USNS LYNCH 2ND CRUISE



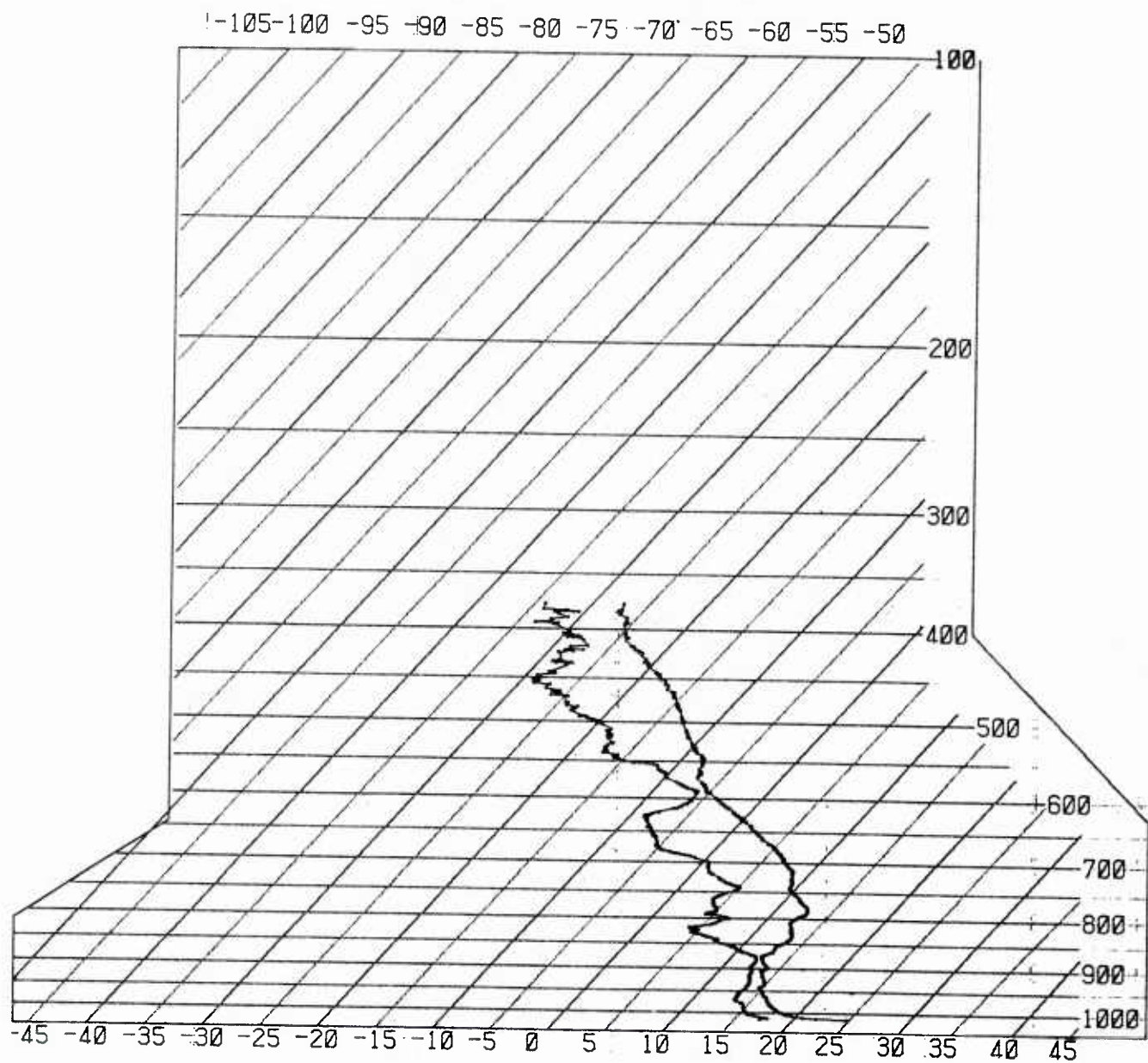
36.0N, 005.5W 19 JUN 86 1153Z

USNS LYNCH 2ND CRUISE

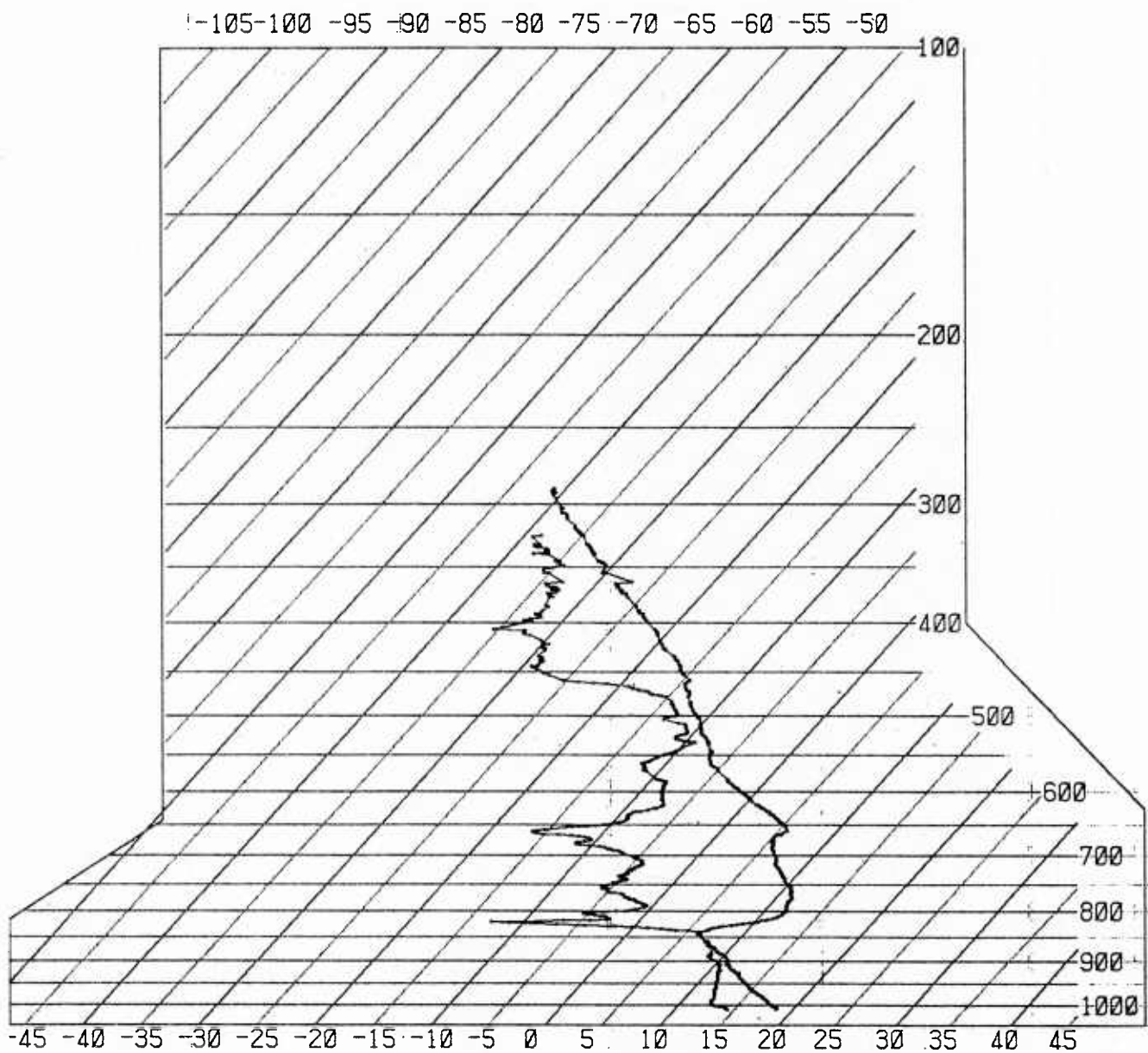


35.5N, 005.4W 20 JUN 86 0548Z

USNS LYNCH 2ND CRUISE

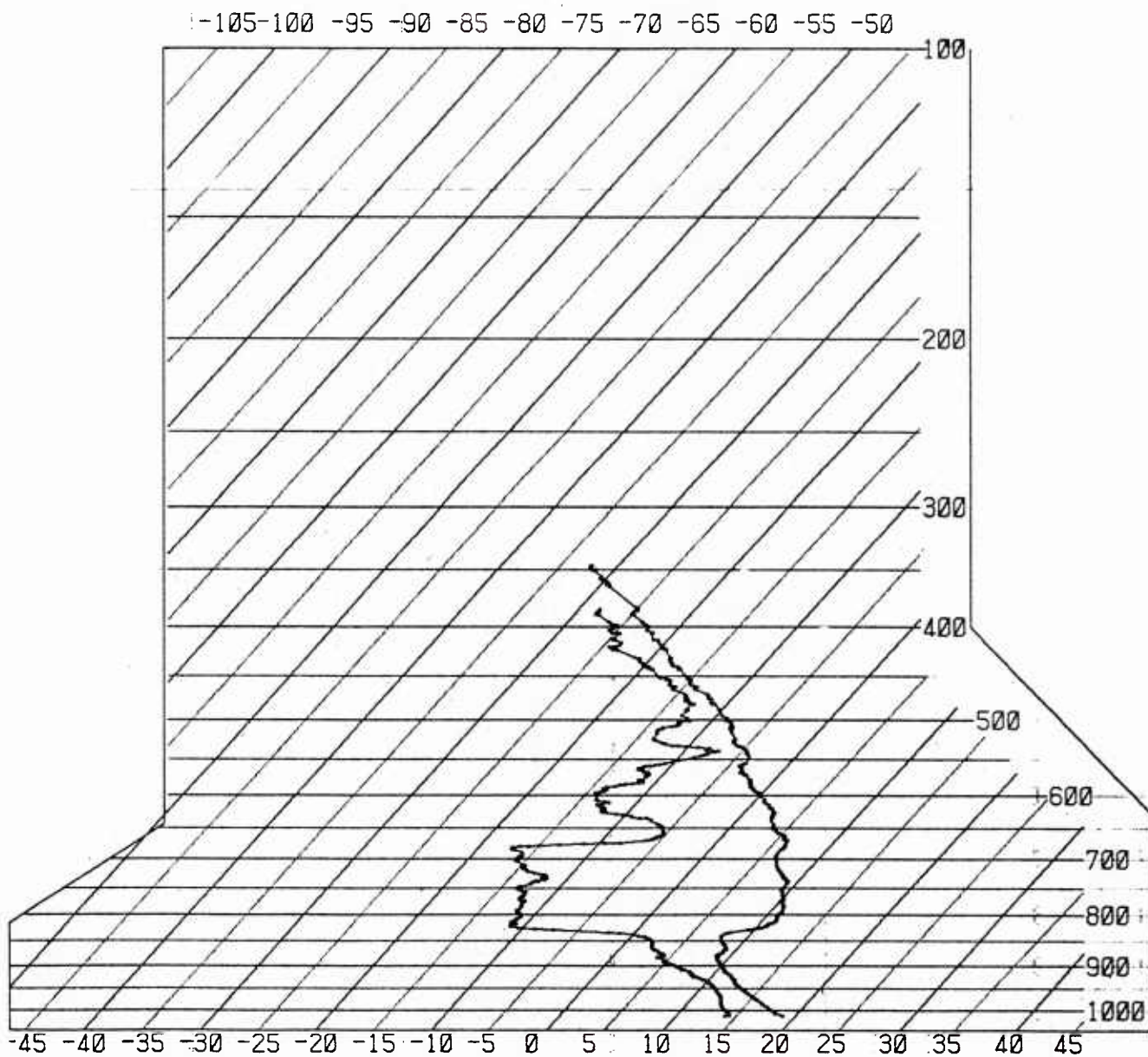


USNS LYNCH 2ND CRUISE



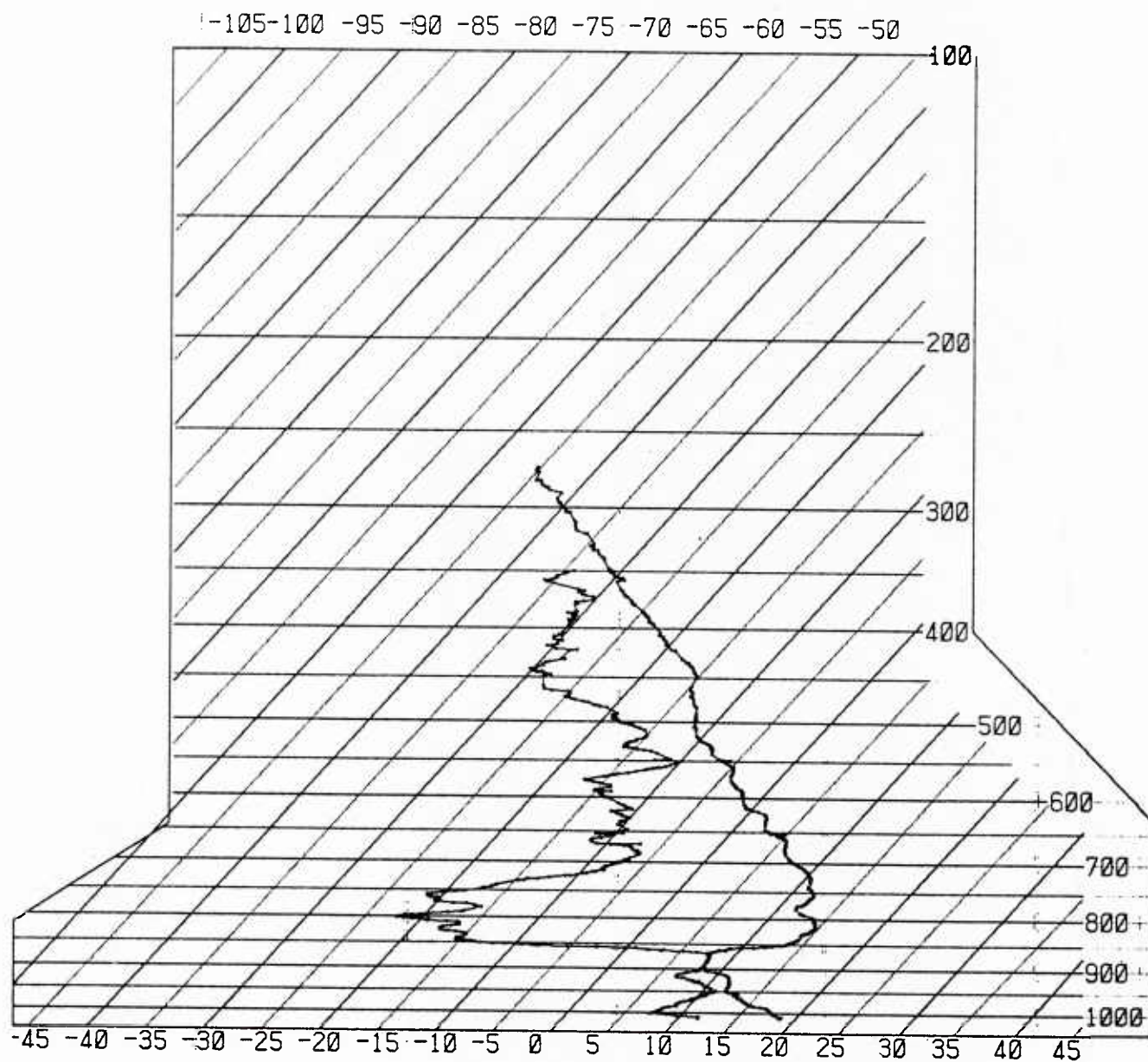
35.5N, 005.4W 21 JUN 86 0553Z

USNS LYNCH 2ND CRUISE

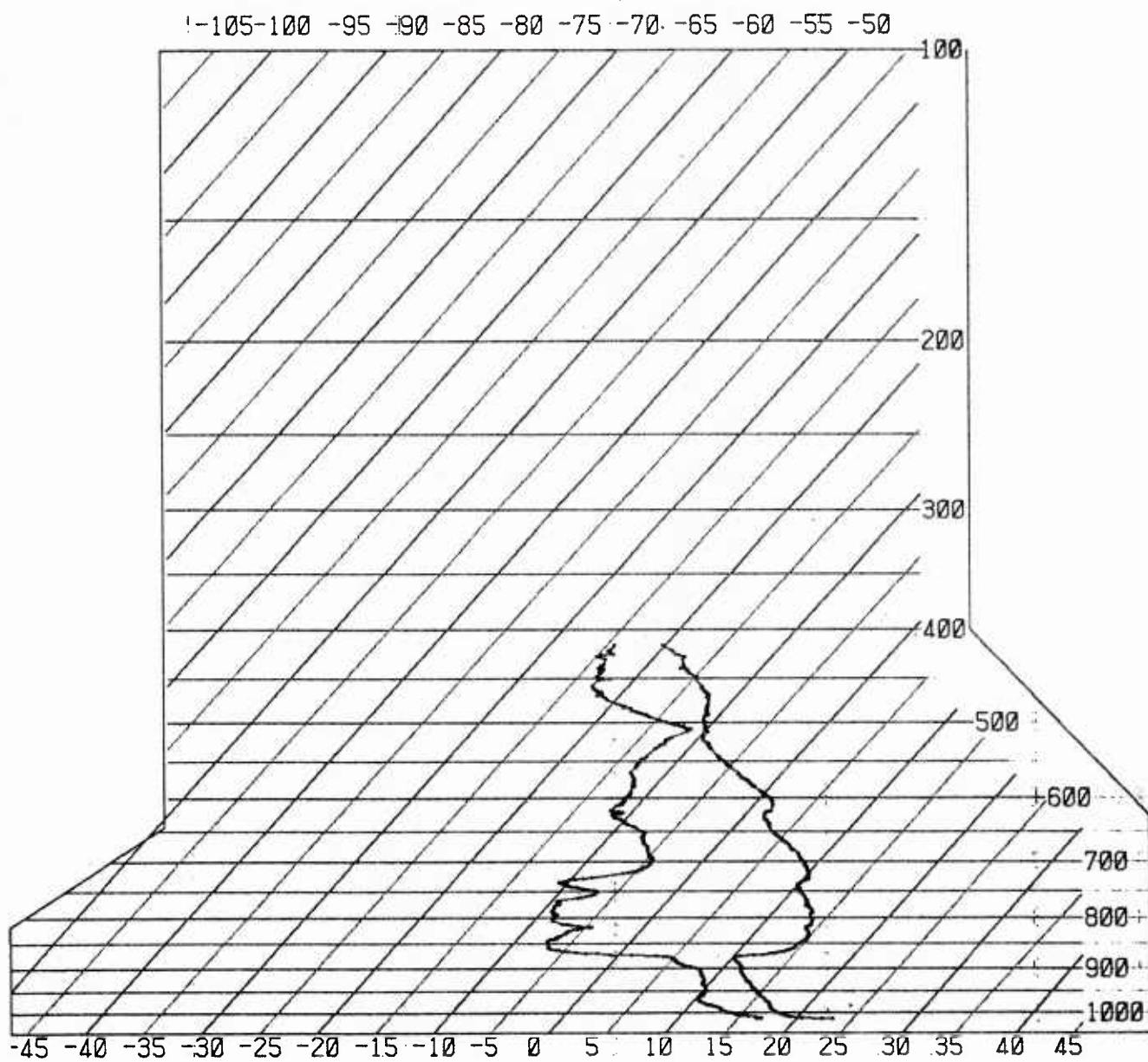


35.5N, 005.4W 21 JUN 86 1153Z

USNS LYNCH 2ND CRUISE

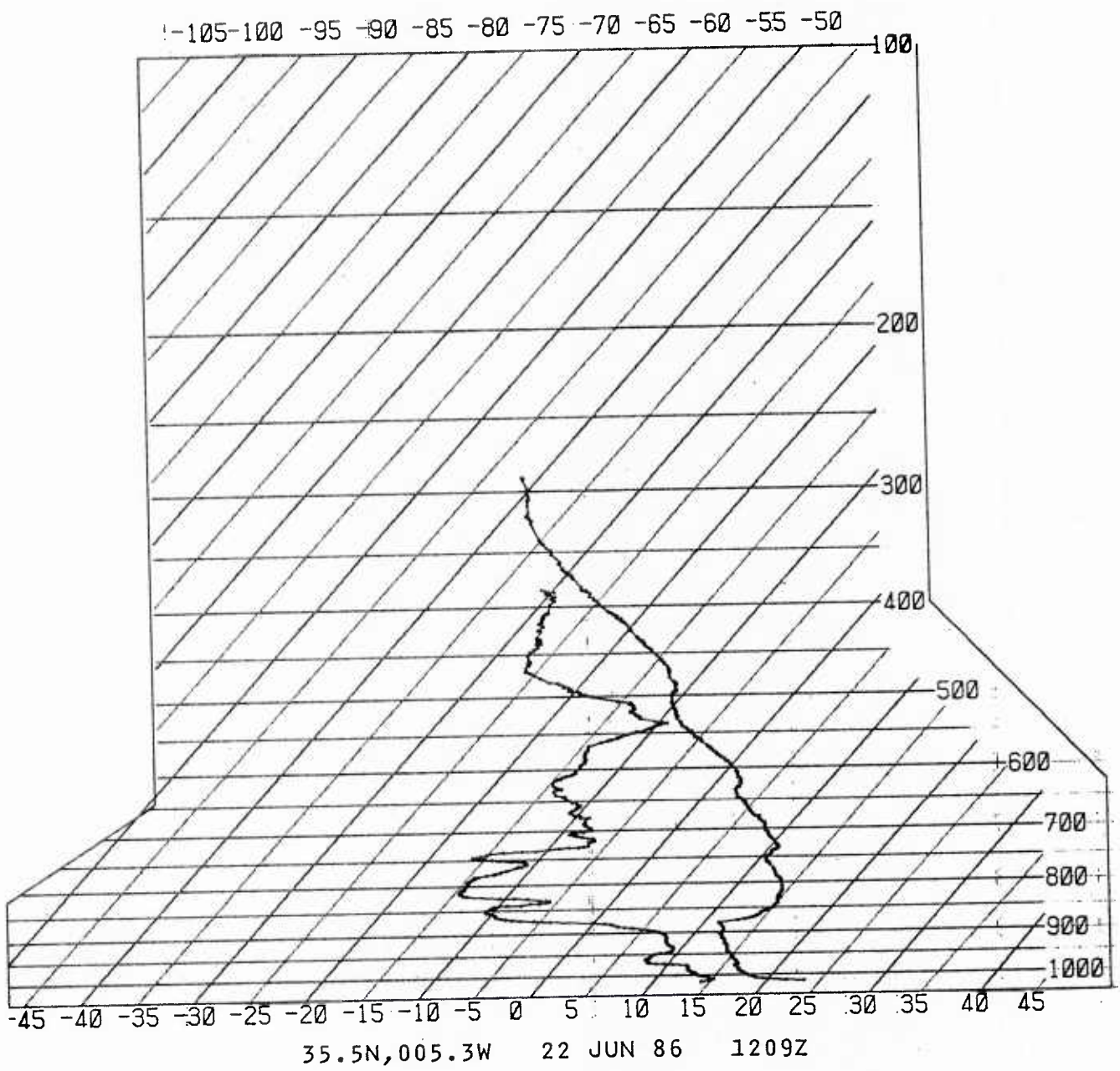


USNS LYNCH 2ND CRUISE

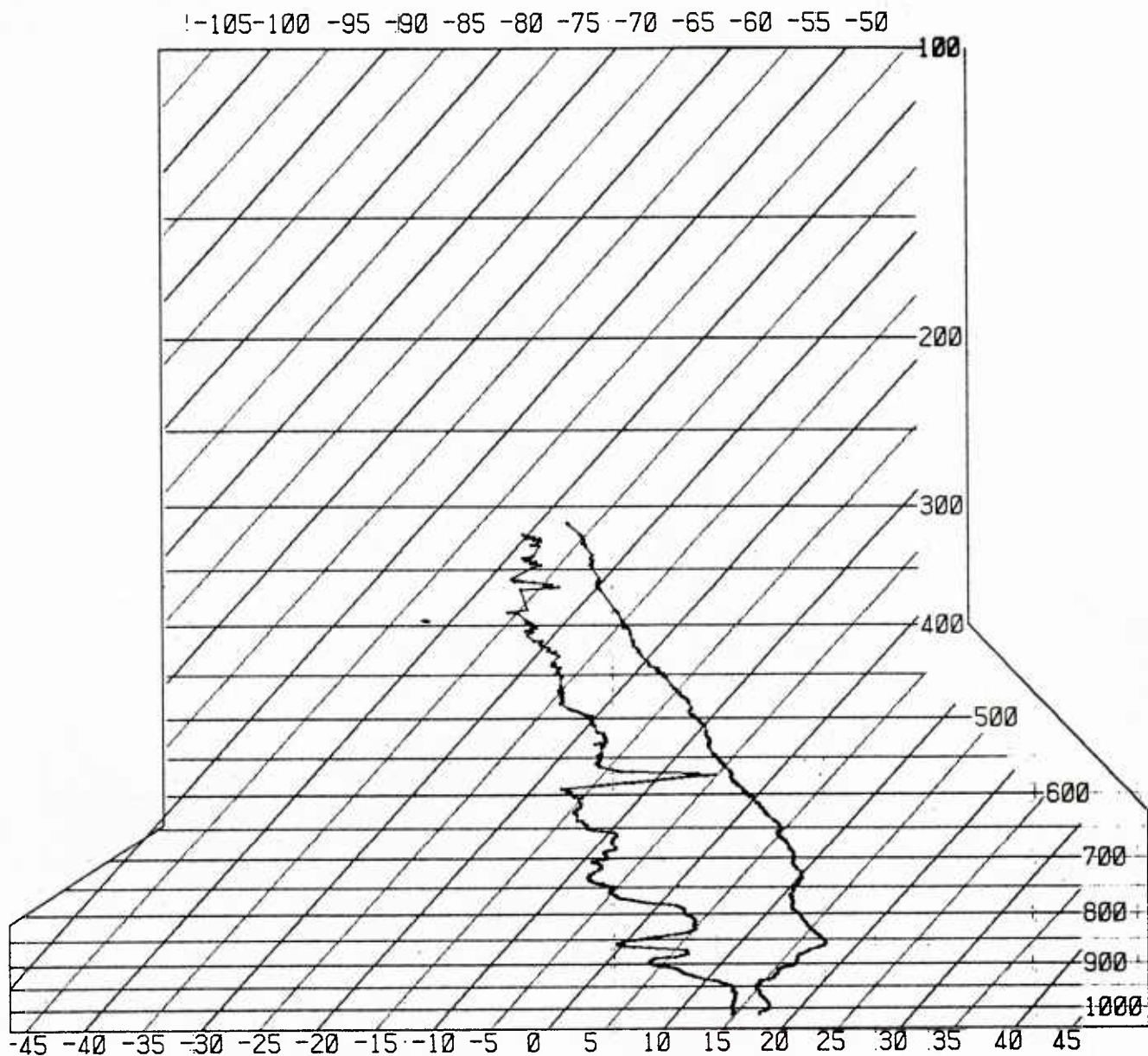


35.5N, 005.3W 22 JUN 86 1051Z

USNS LYNCH 2ND CRUISE

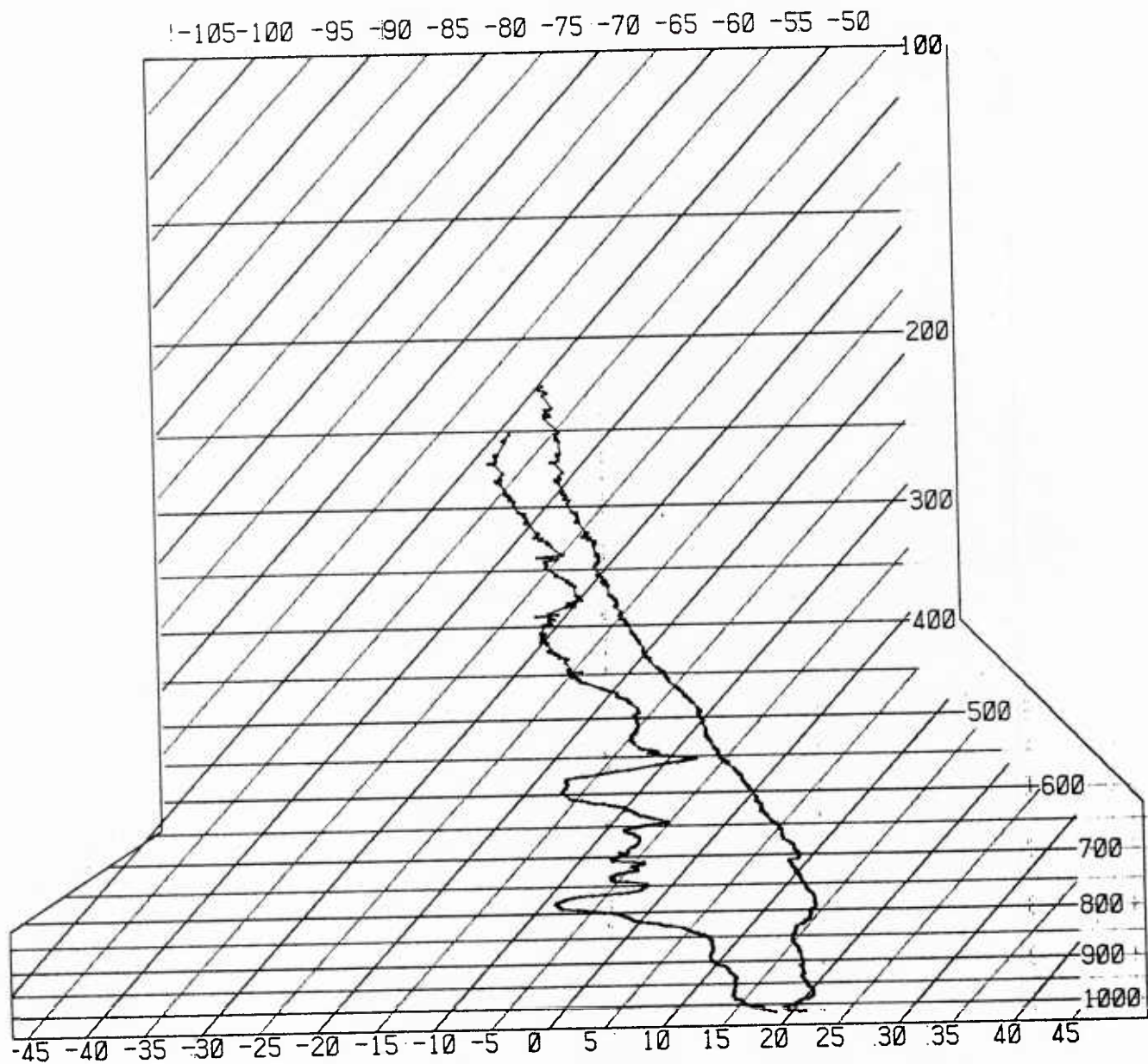


USNS LYNCH 2ND CRUISE



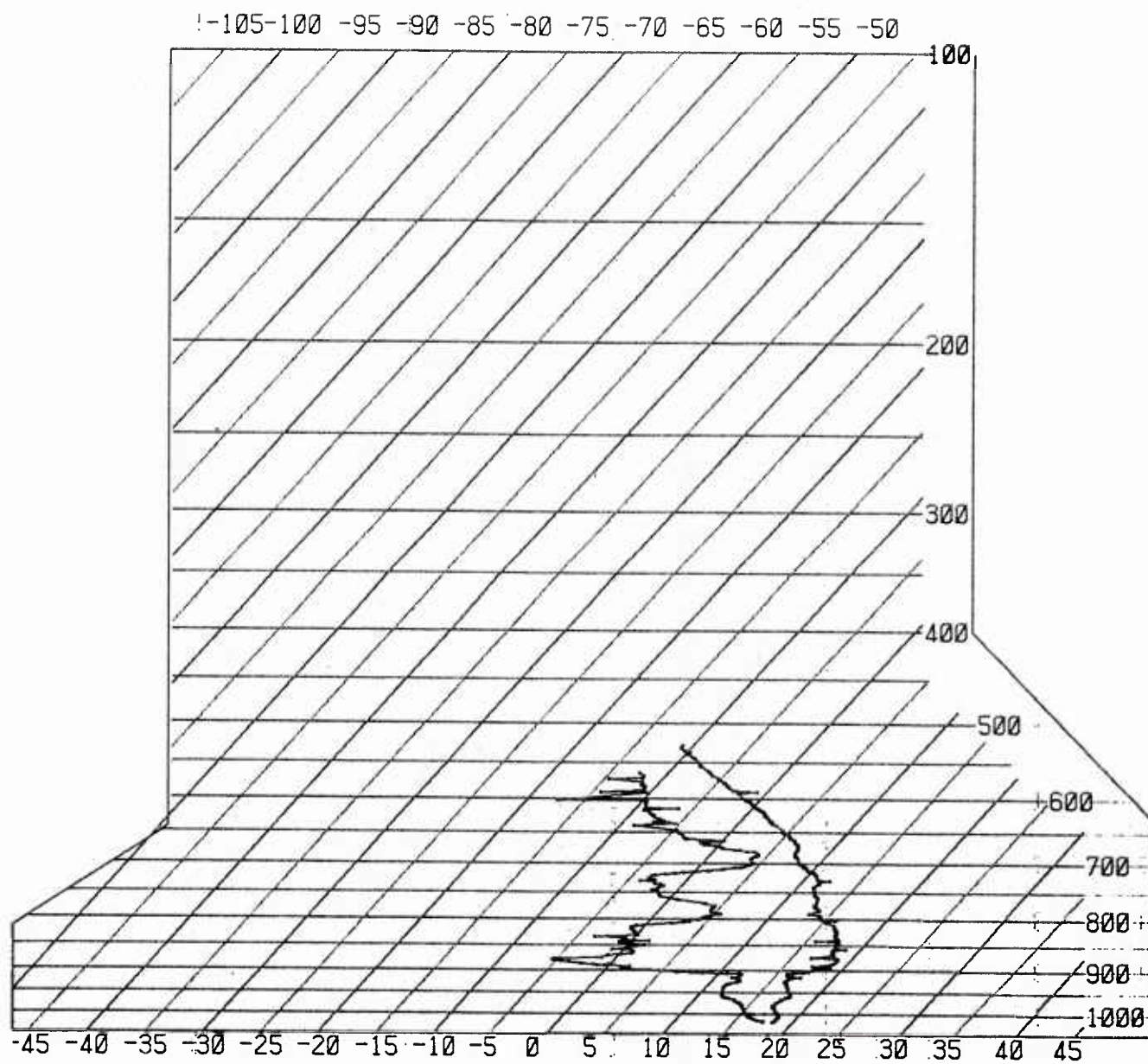
36.0N, 005.3W 23 JUN 86 0549Z

USNS LYNCH 2ND CRUISE



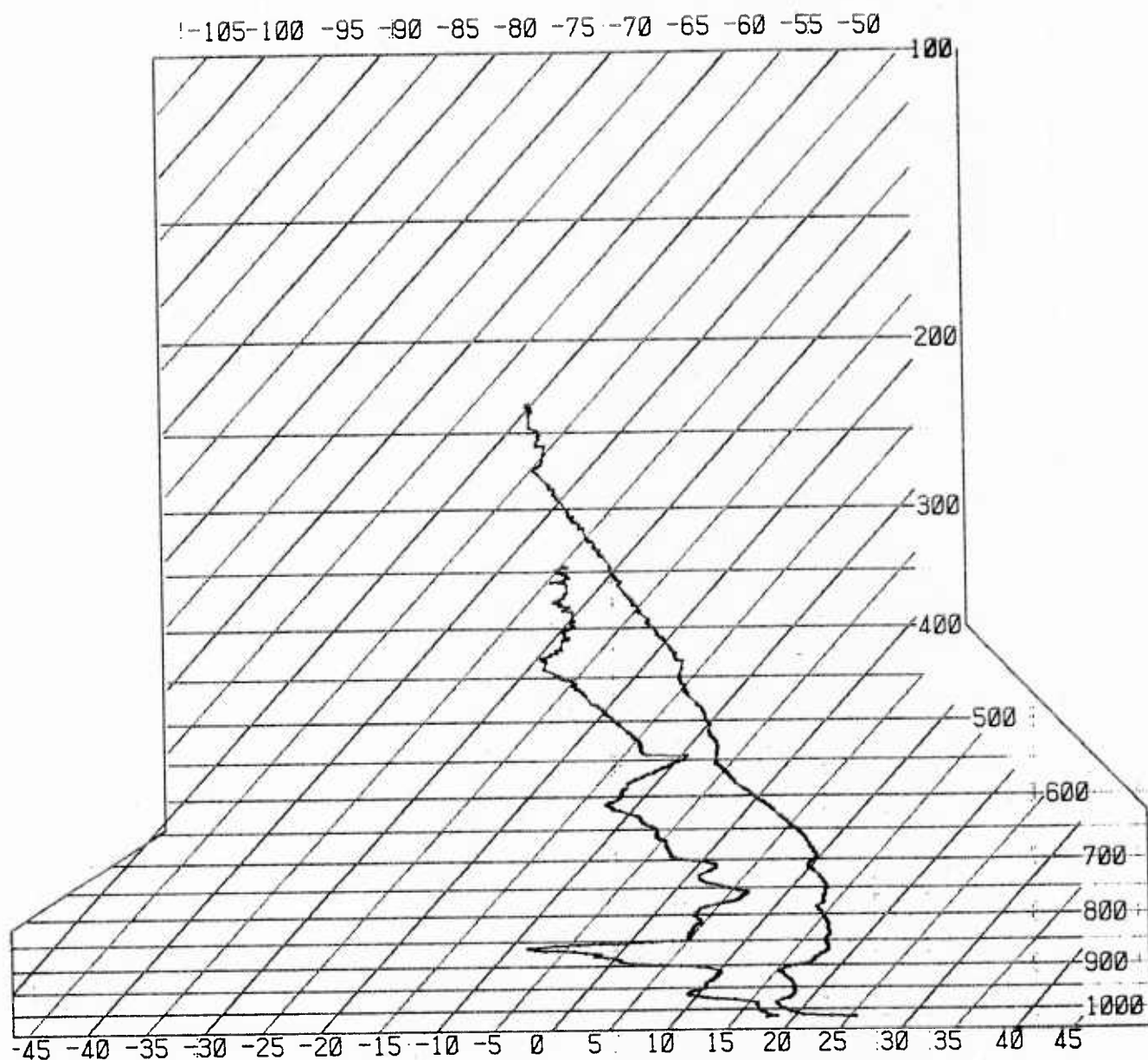
36.0N, 005.0W 23 JUN 86 1149Z

USNS LYNCH 2ND CRUISE



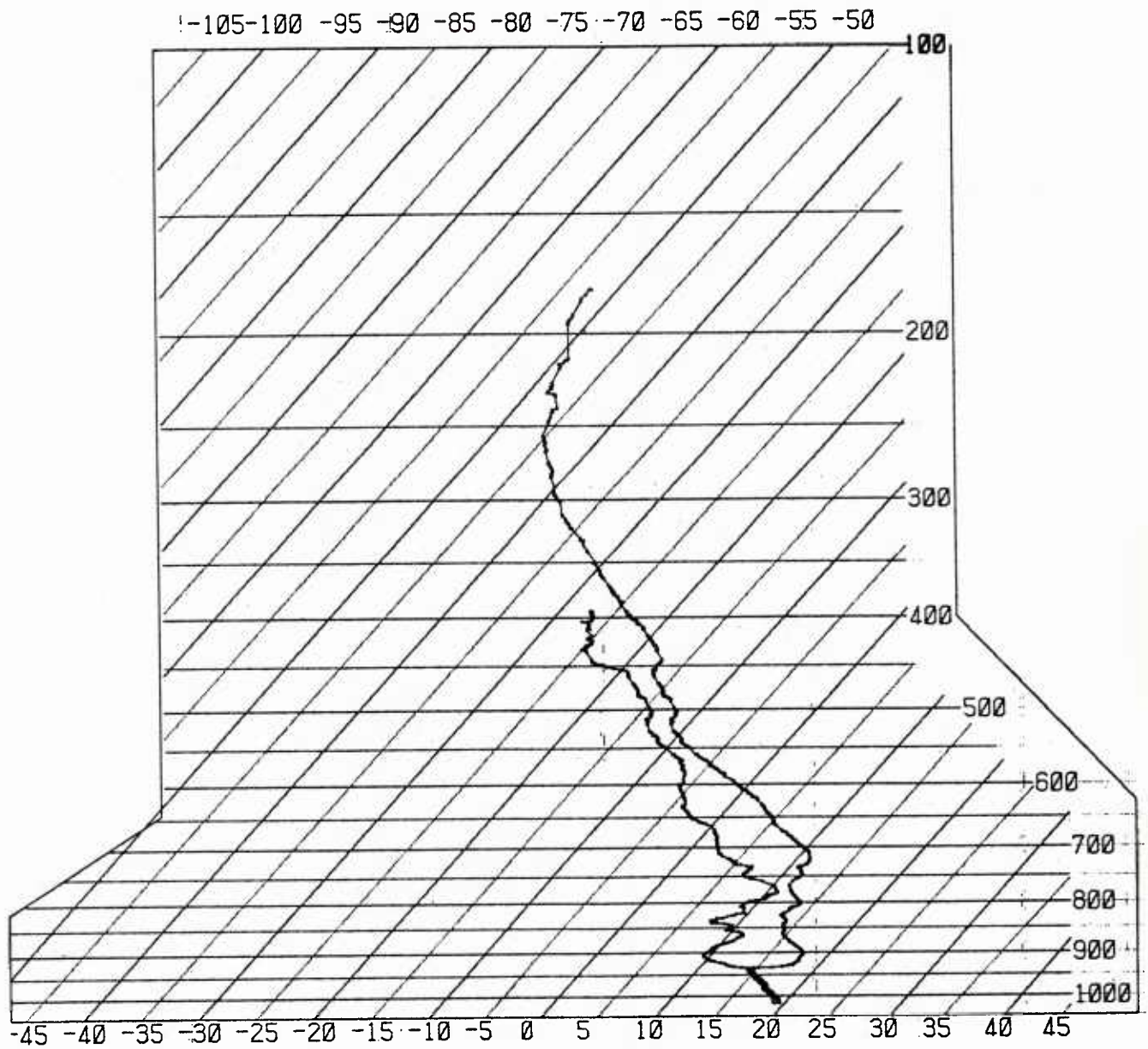
35.5N, 005.4W 24 JUN 86 0551Z

USNS LYNCH 2ND CRUISE



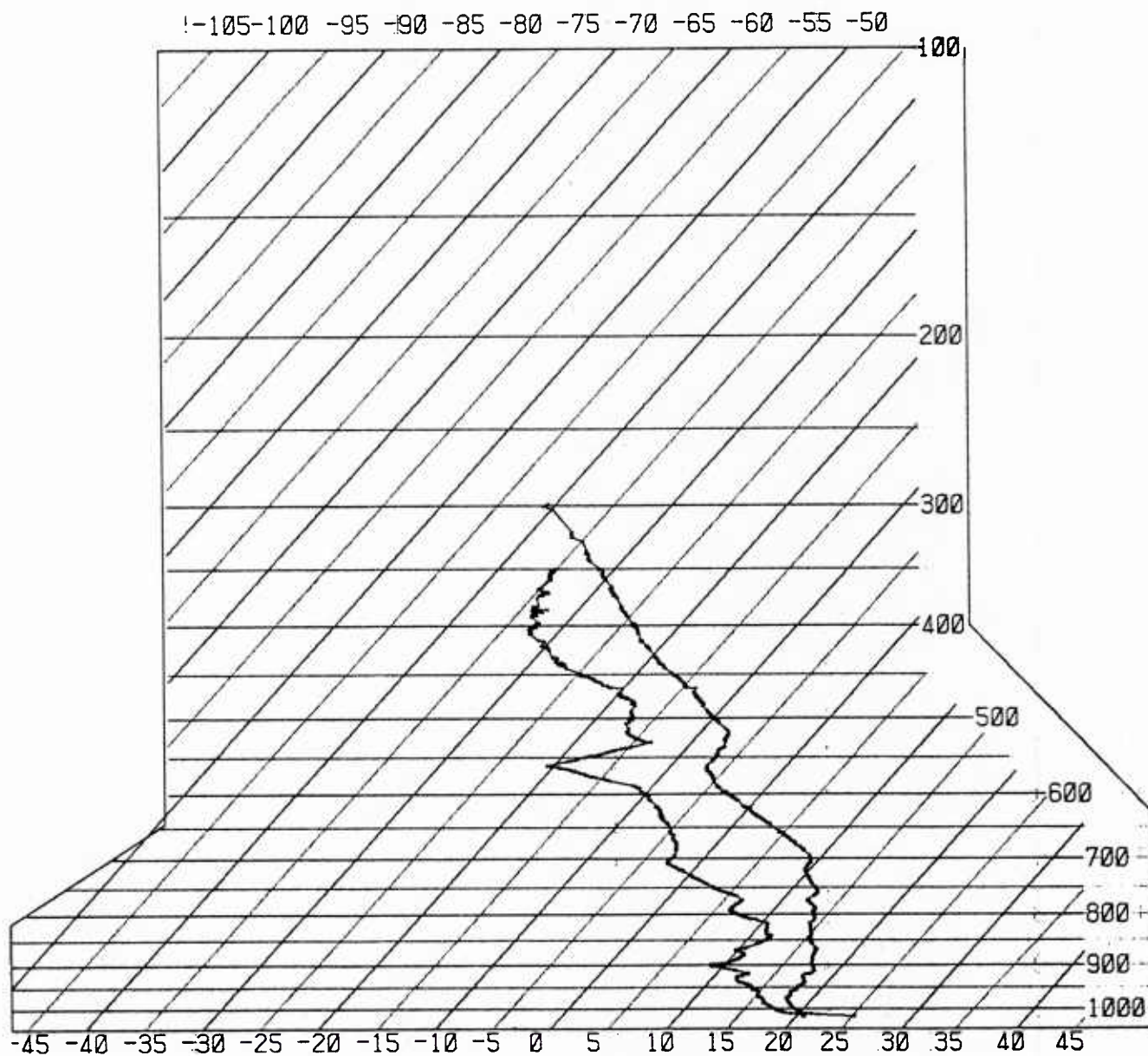
35.5N, 006.0W 24 JUN 86 1147Z

USNS LYNCH 2ND CRUISE



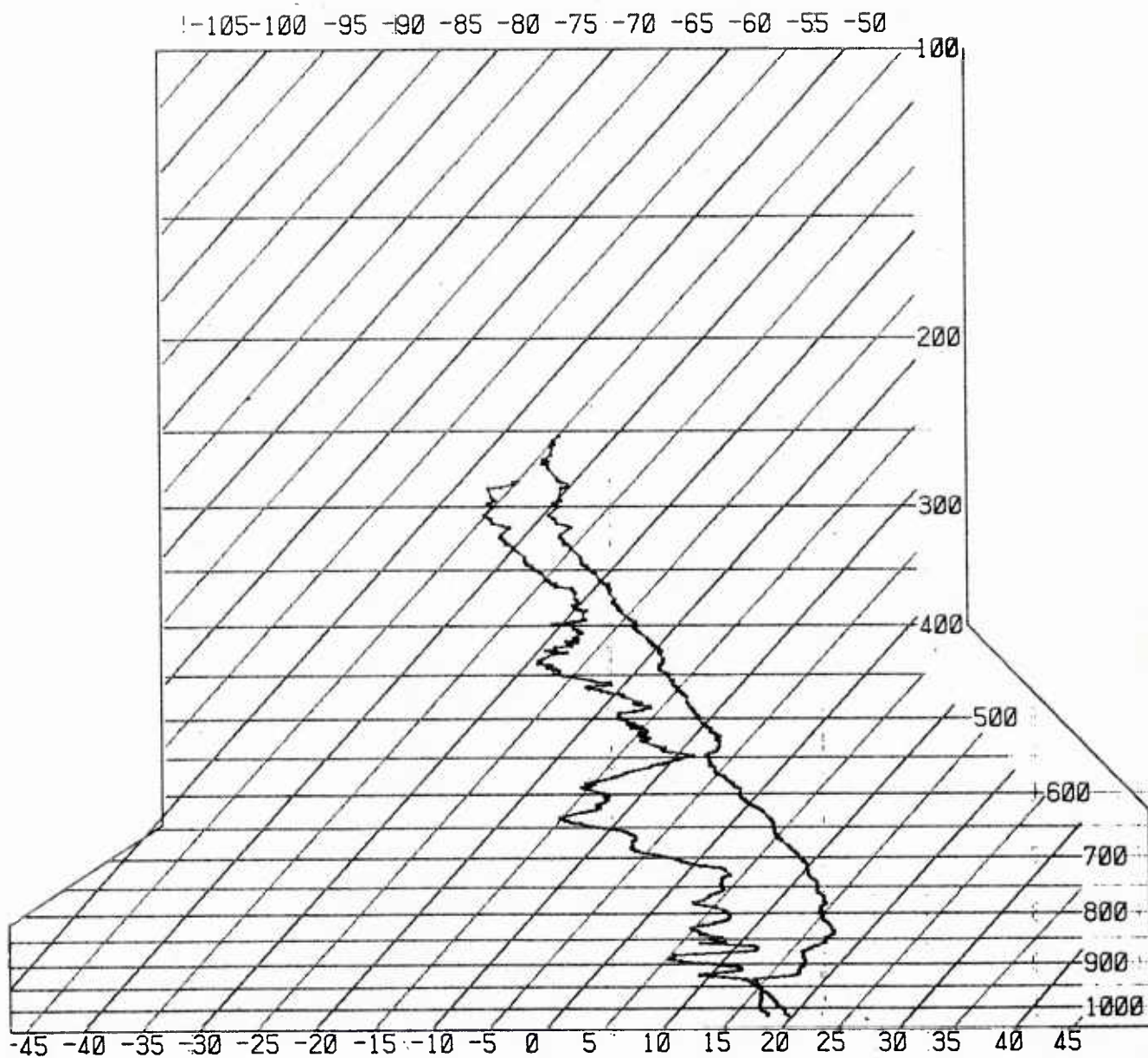
35.5N, 005.4W 25 JUN 86 0552Z

USNS LYNCH 2ND CRUISE



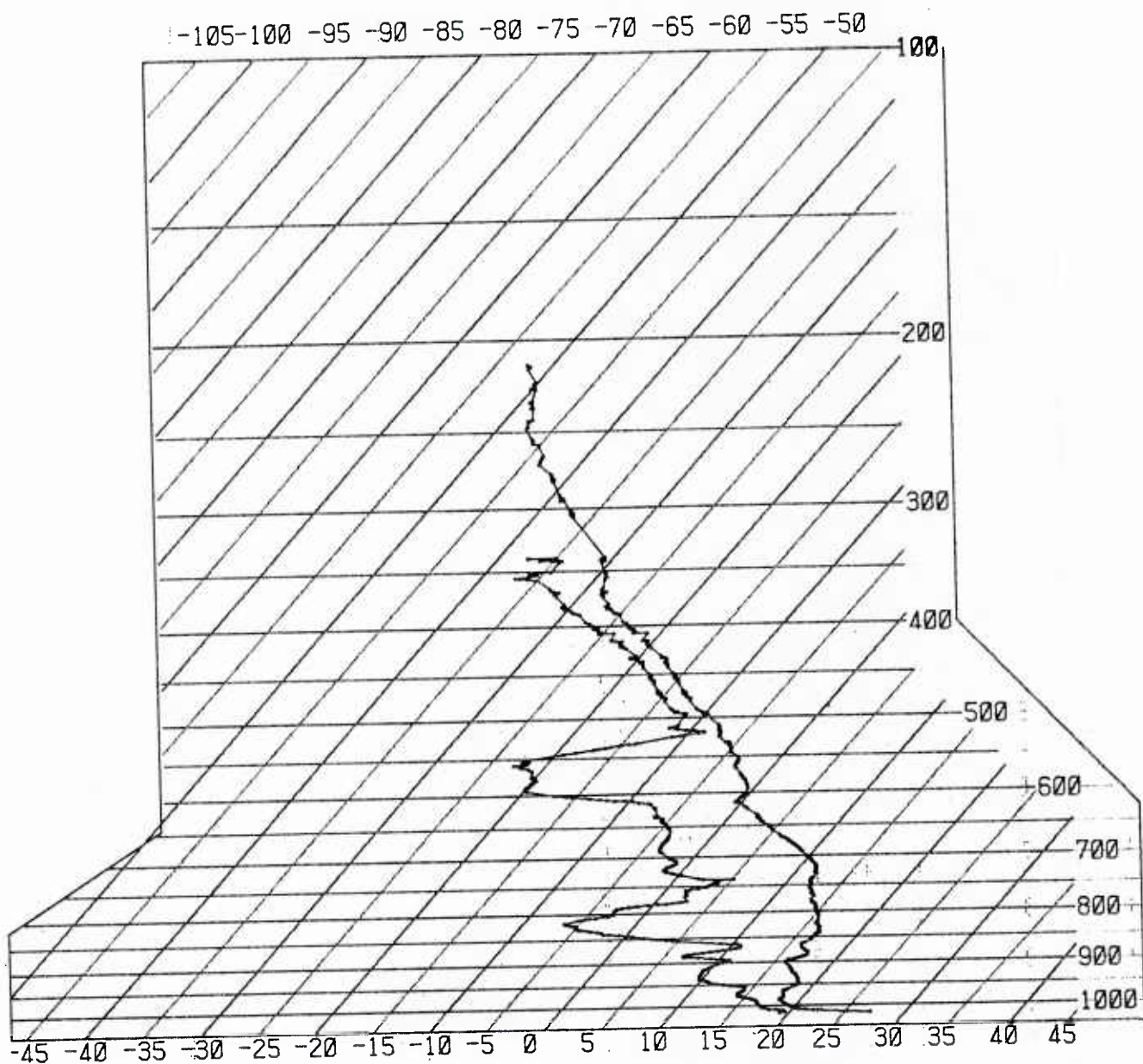
35.5N, 005.4W 25 JUN 86 1152Z

USNS LYNCH 2ND CRUISE



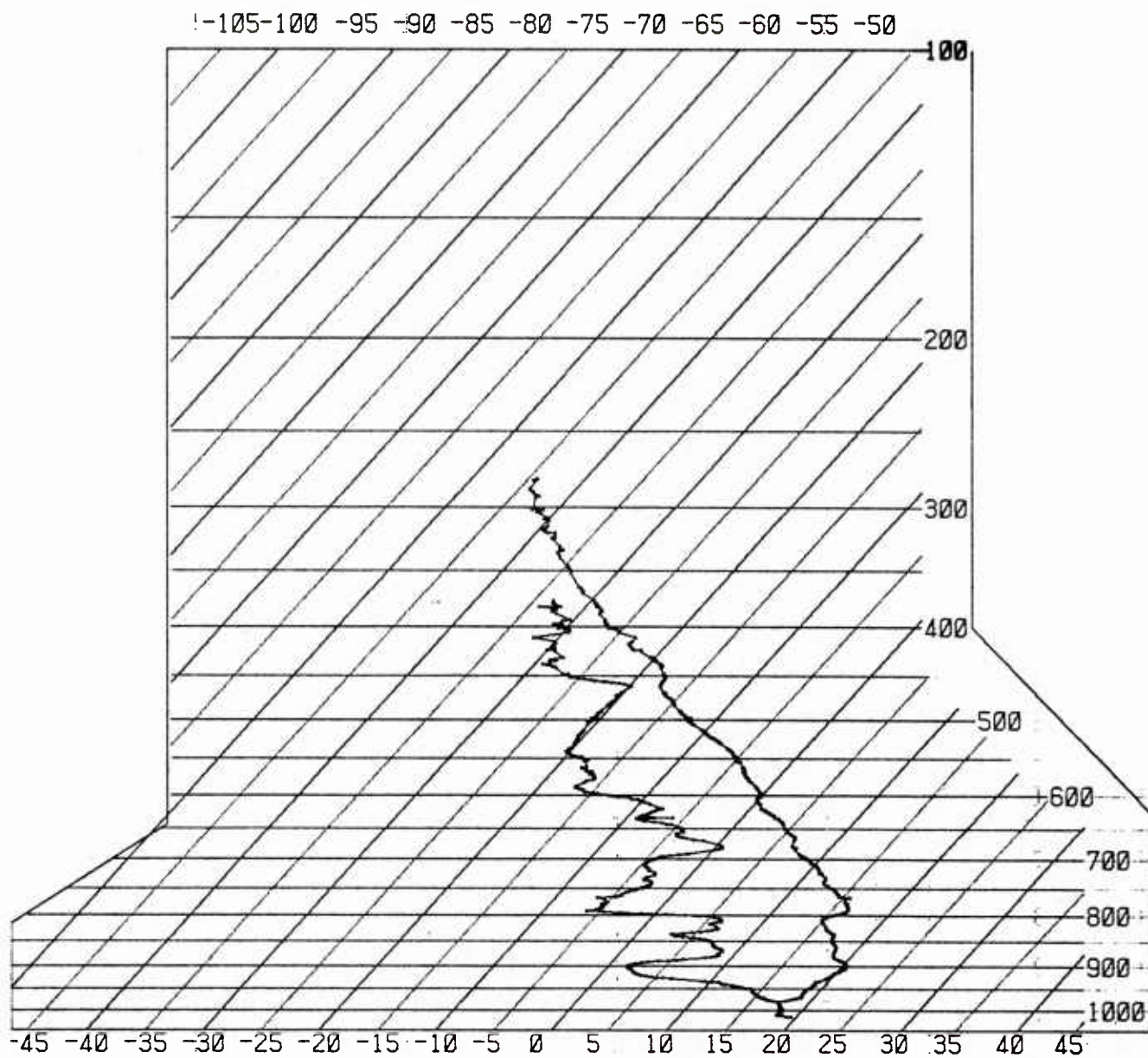
35.5N, 005.4W 26 JUN 86 0535Z

USNS LYNCH 2ND CRUISE



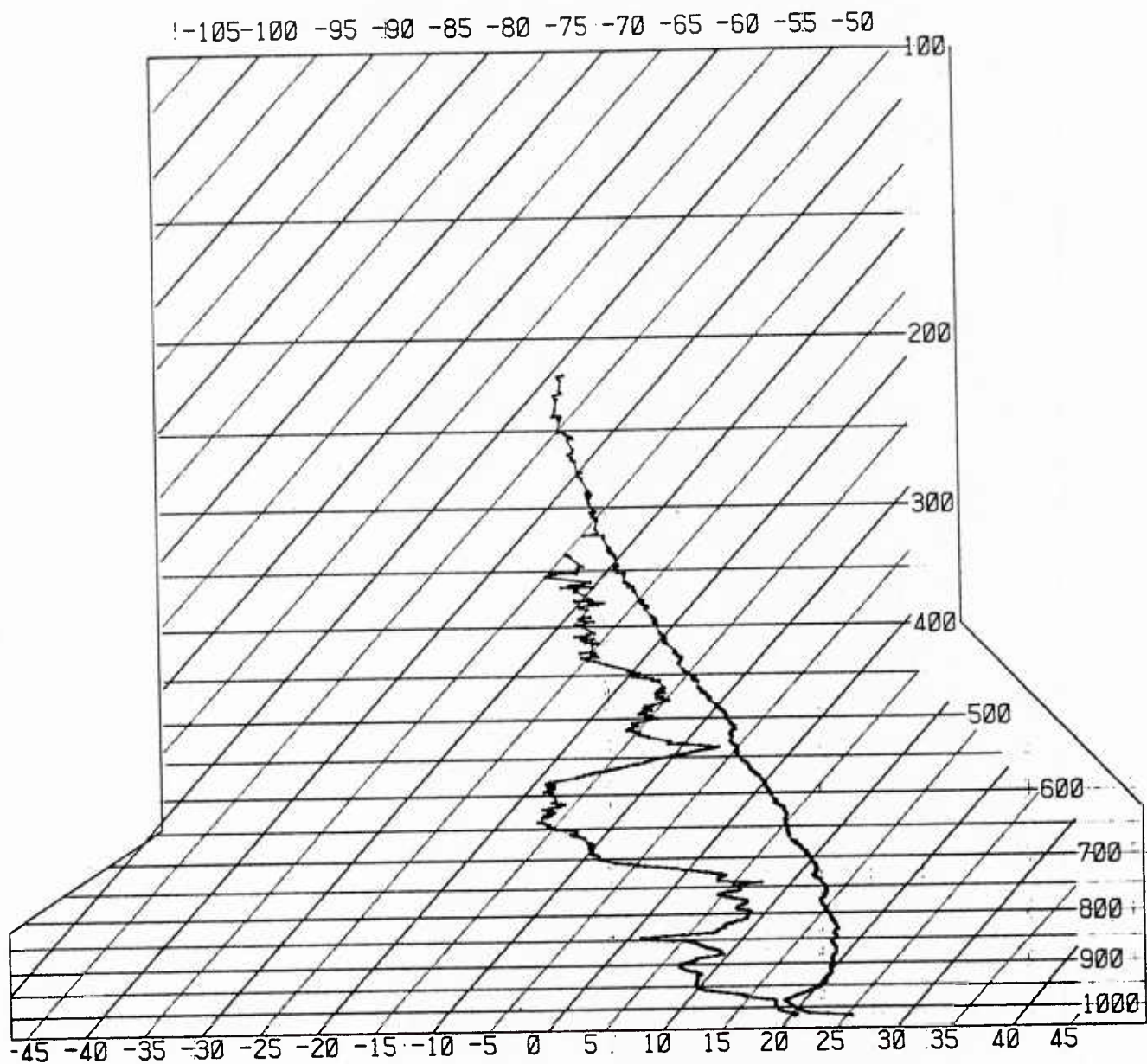
35.5N, 005.4W 26 JUN 86 1144Z

USNS LYNCH 2ND CRUISE



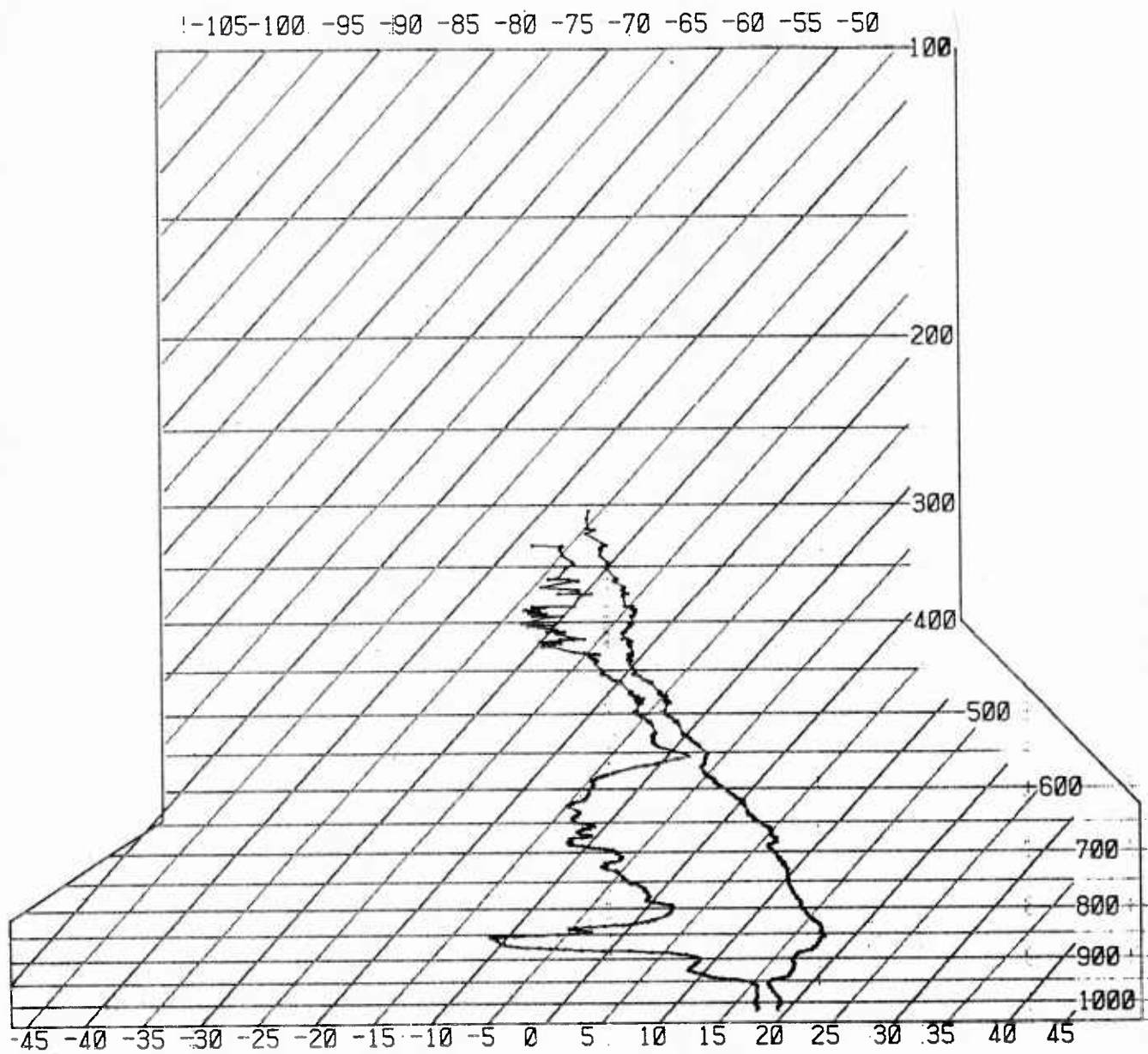
36.0N, 006.0W 27 JUN 86 0552Z

USNS LYNCH 2ND CRUISE

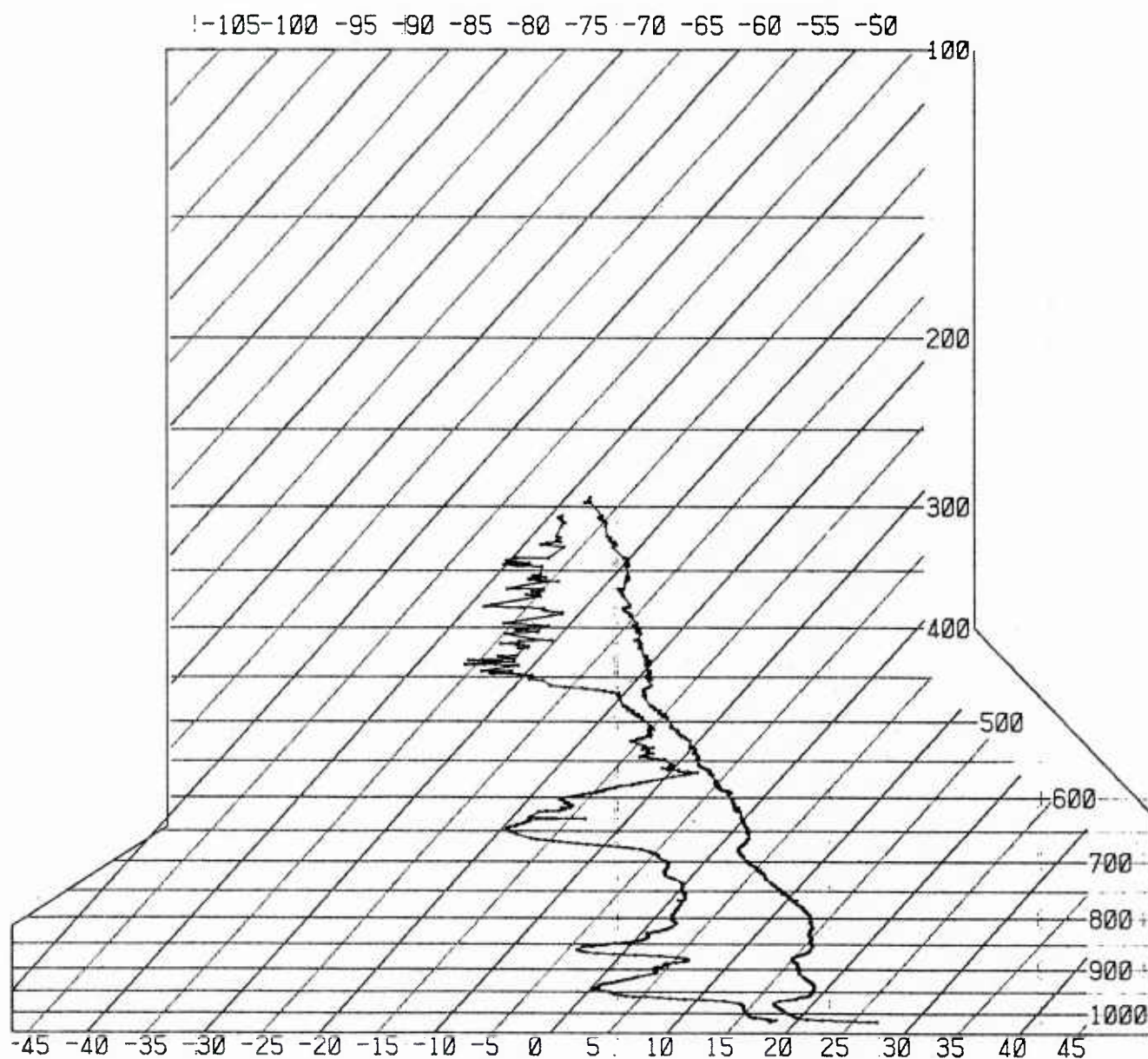


35.5N, 005.5W 28 JUN 86 1149Z

USNS LYNCH 2ND CRUISE

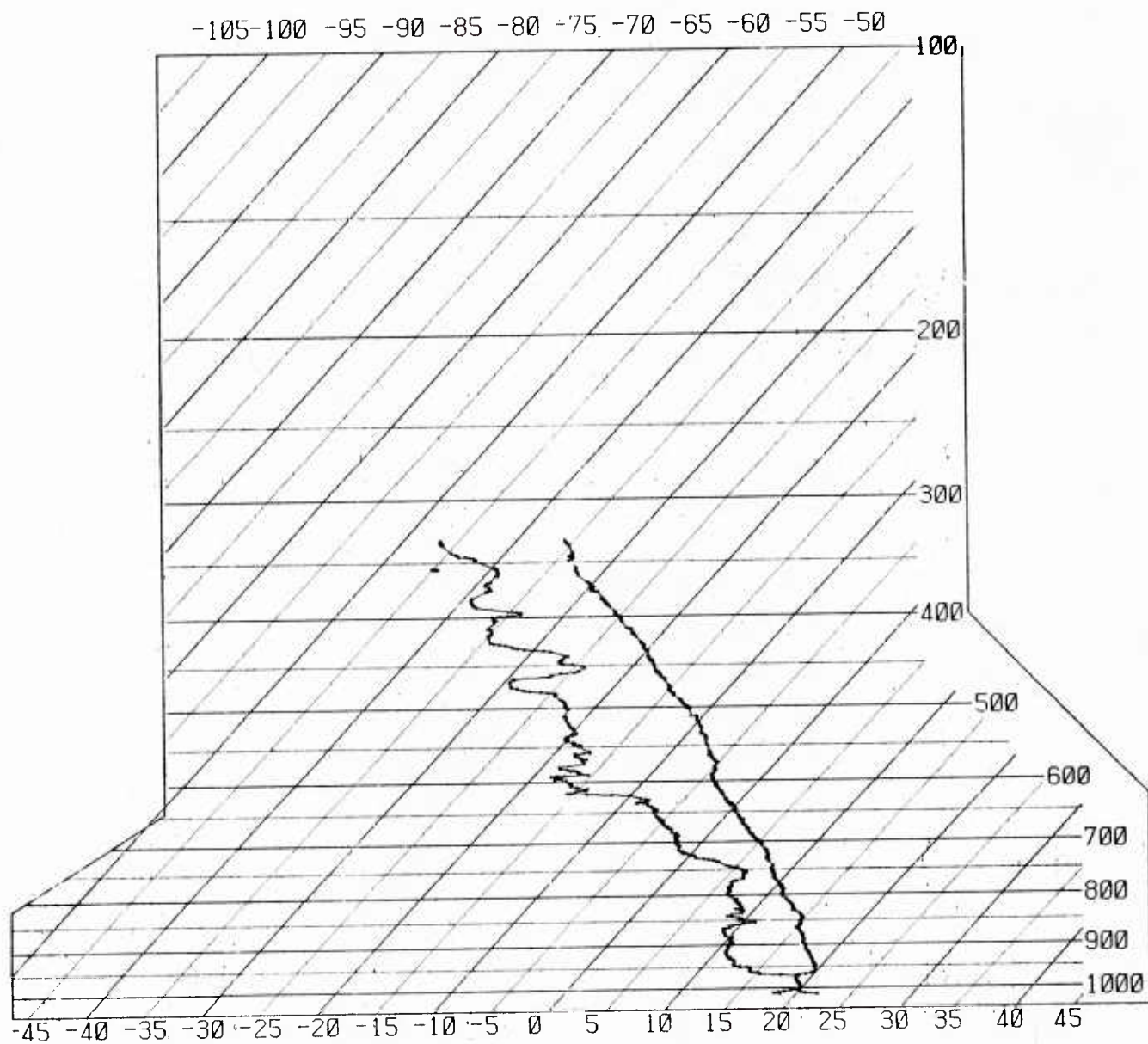


USNS LYNCH 2ND CRUISE



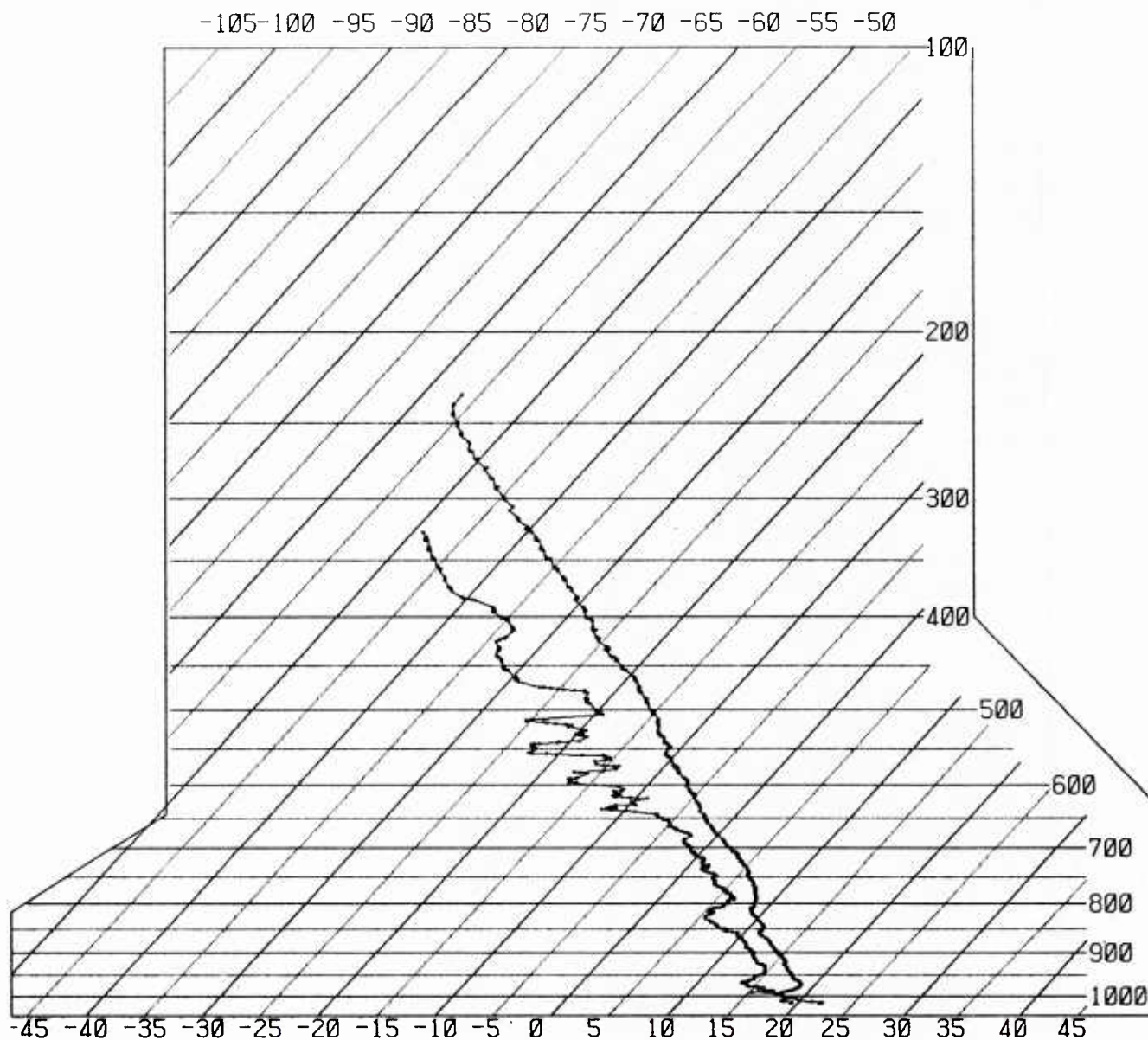
35.5N, 005.5W 29 JUN 86 1141Z

USNS LYNCH 2ND CRUISE



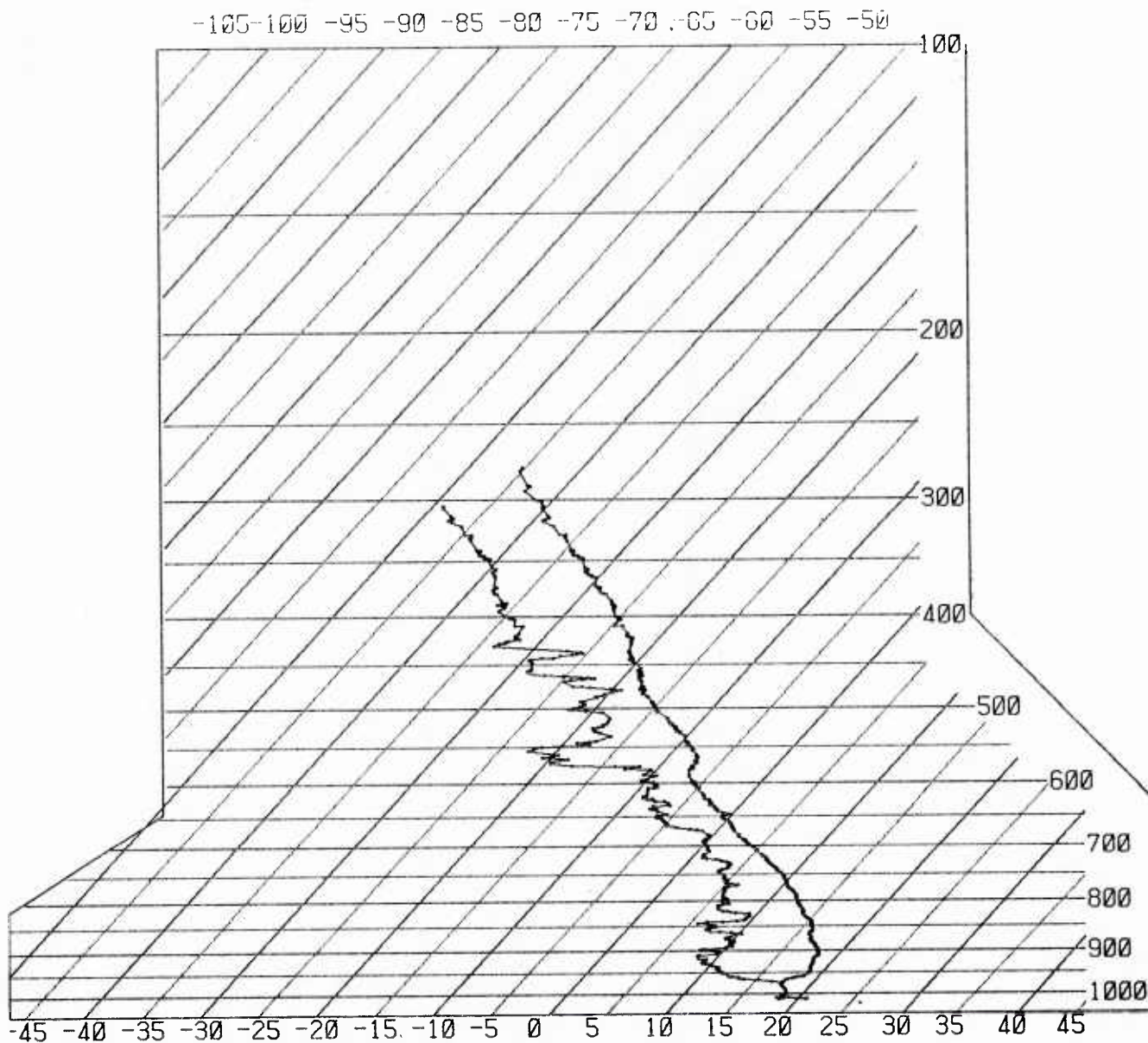
39.0N, 002.0E 18 JUN 86 0031Z

USS AMERICA CRUISE



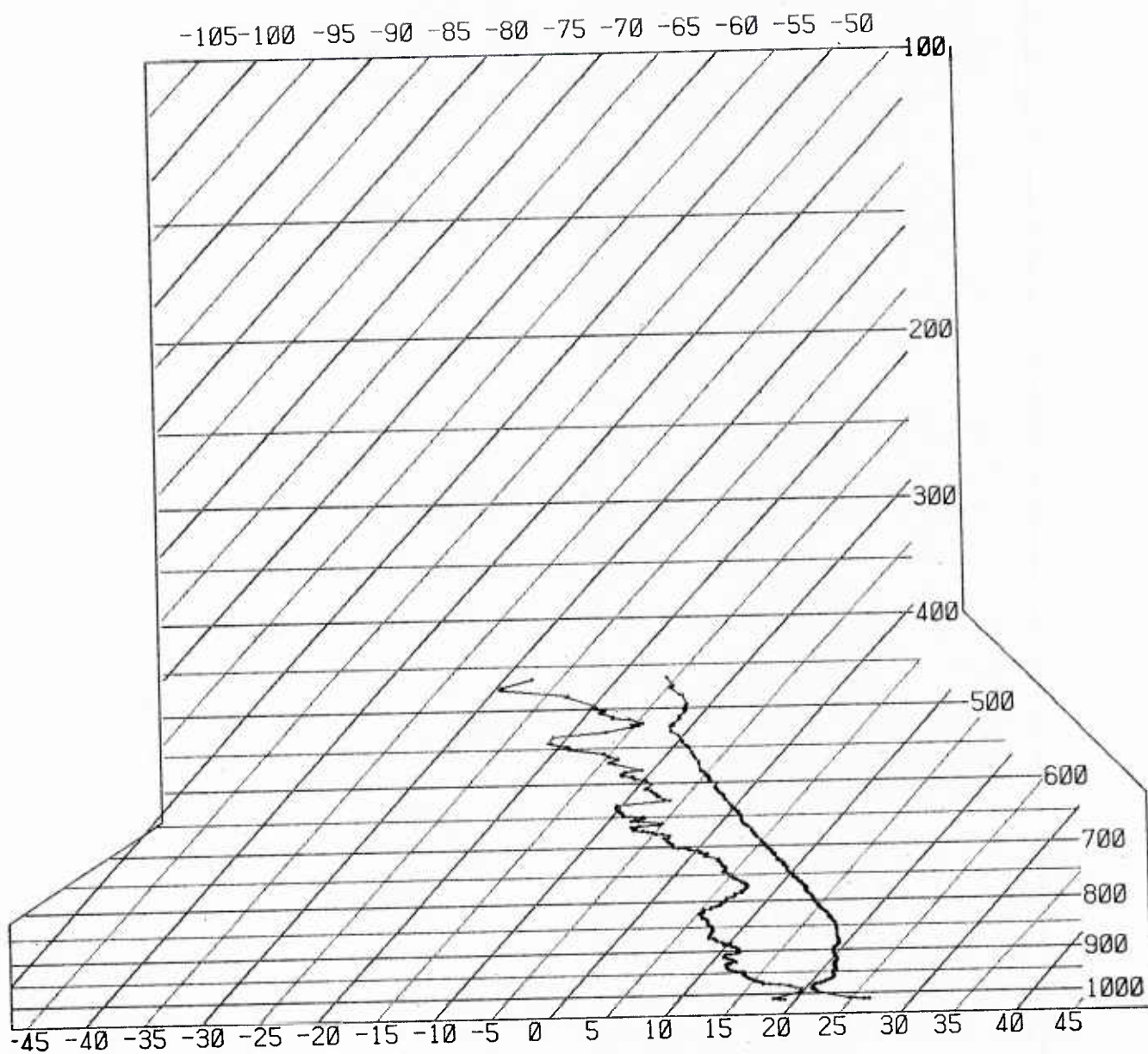
39.1N,008.0E 18 JUN 86 0607Z

USS AMERICA CRUISE



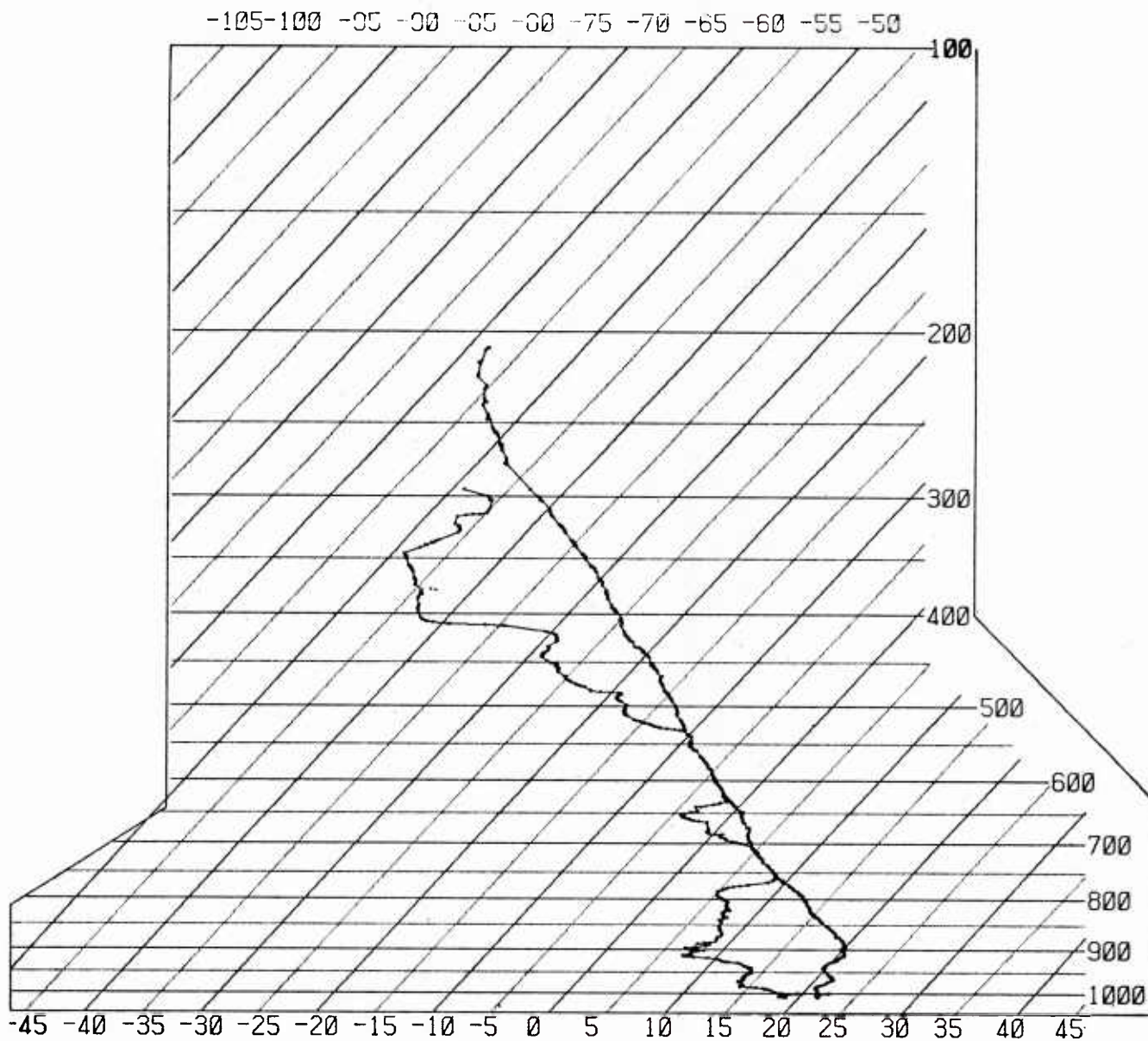
39.2N, 002.3E 18 JUN 86 2347Z

USS AMERICA CRUISE



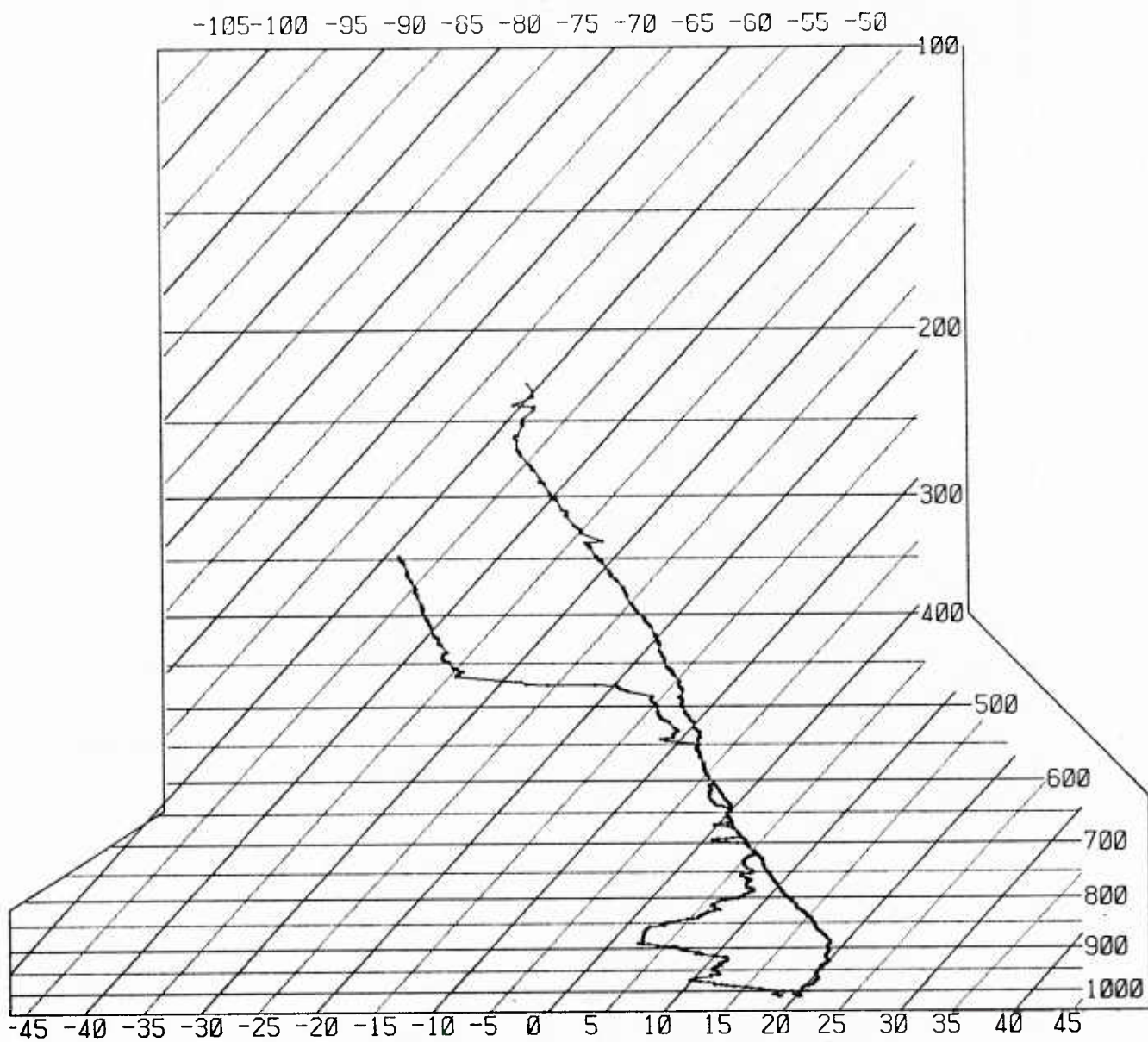
38.6N, 004.2E 19 JUN 86 0708Z

USS AMERICA CRUISE



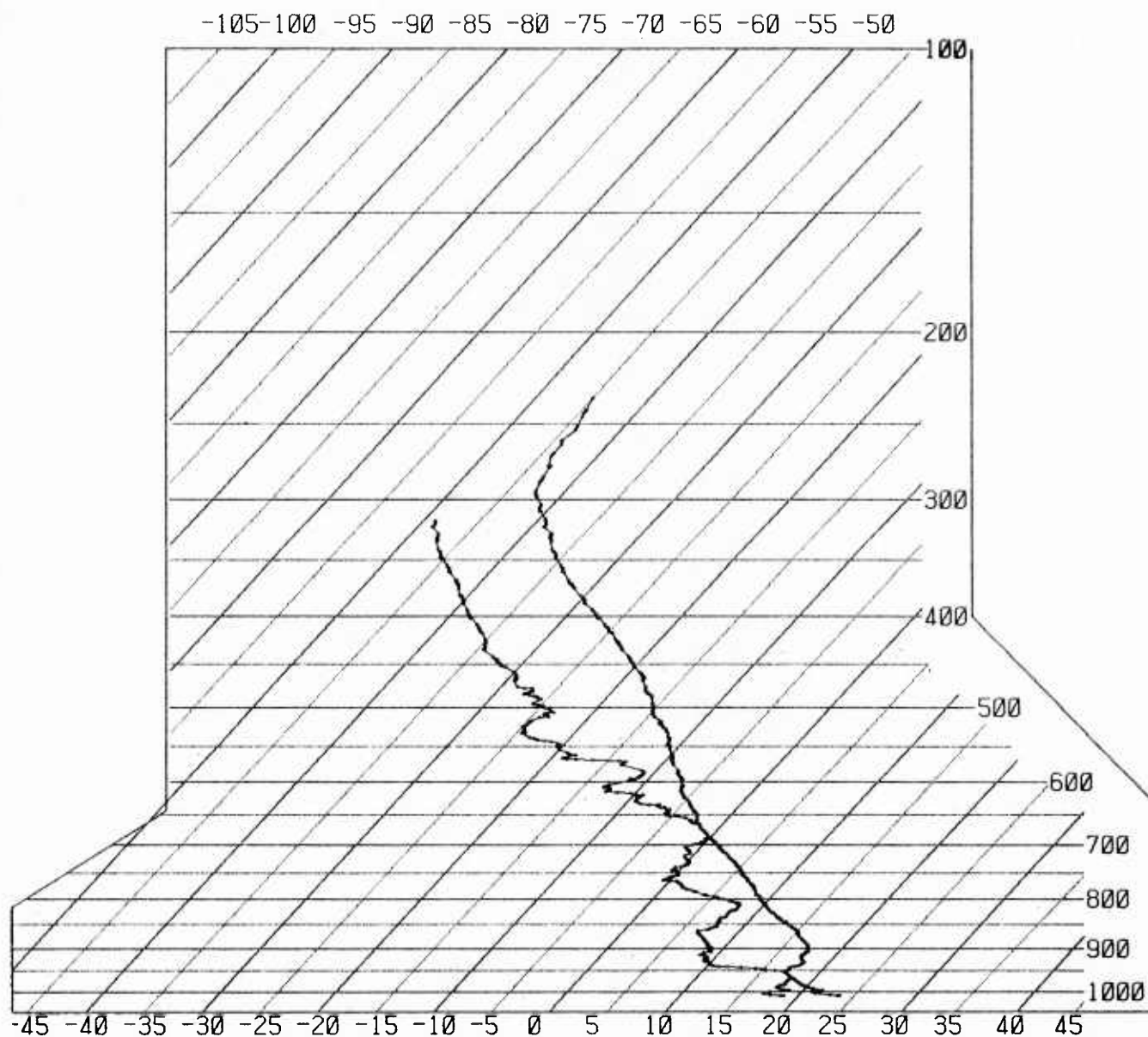
37.1N, 012.4E 20 JUN 86 1831Z

USS AMERICA CRUISE



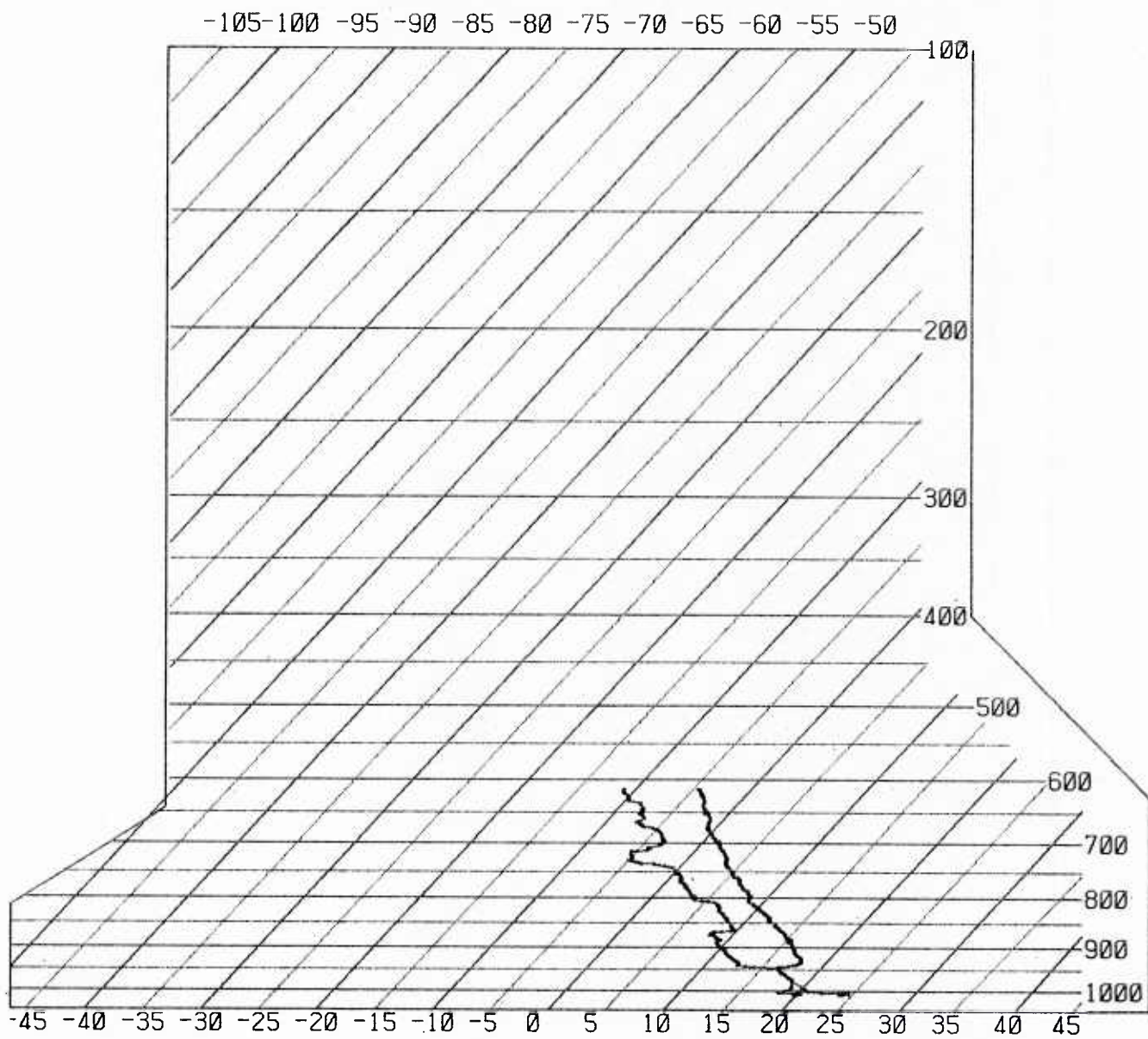
36.2N, 014.3E 21 JUN 86 0535Z

USS AMERICA CRUISE



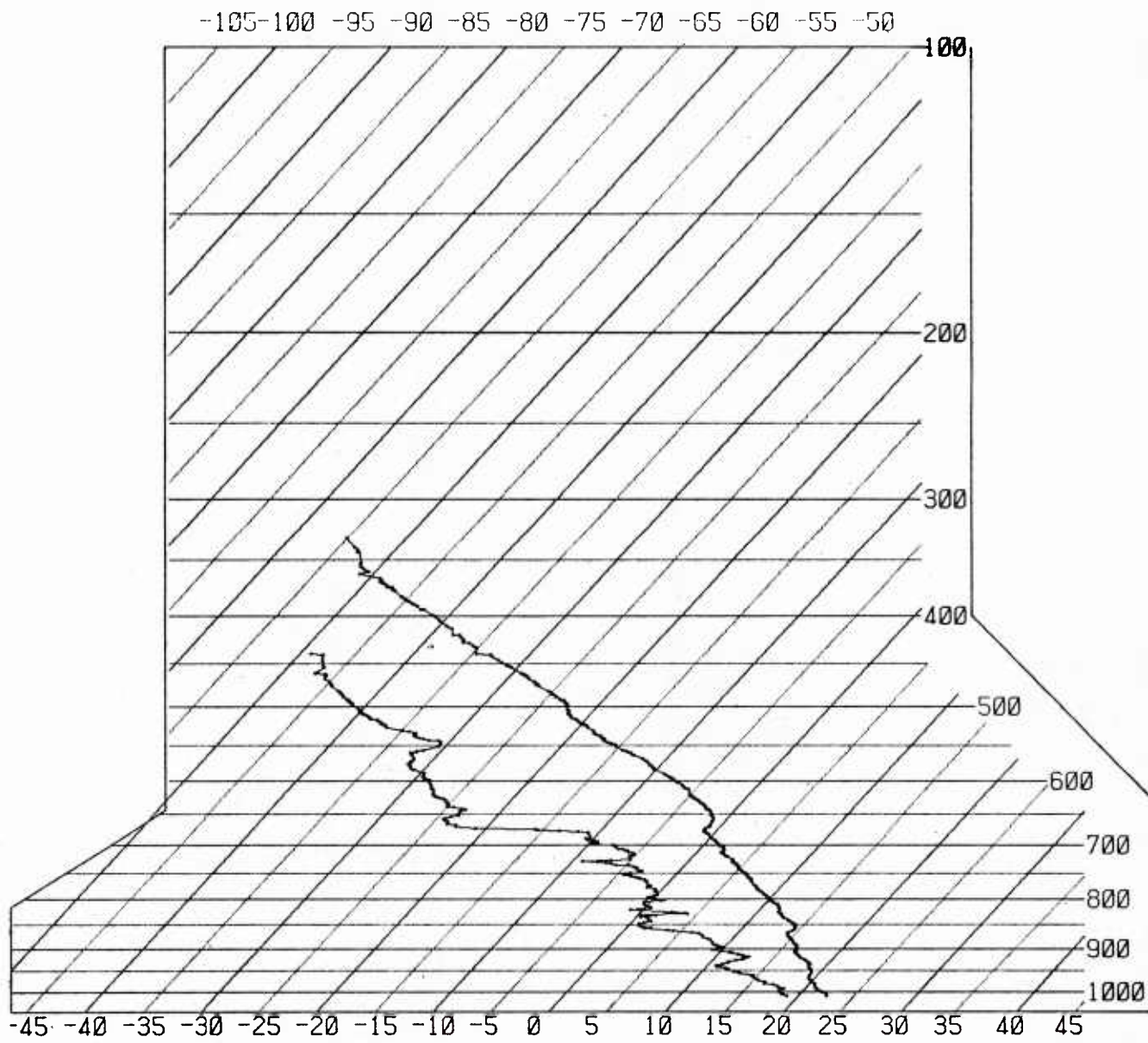
36.3N, 017.4E 22 JUN 86 0606Z

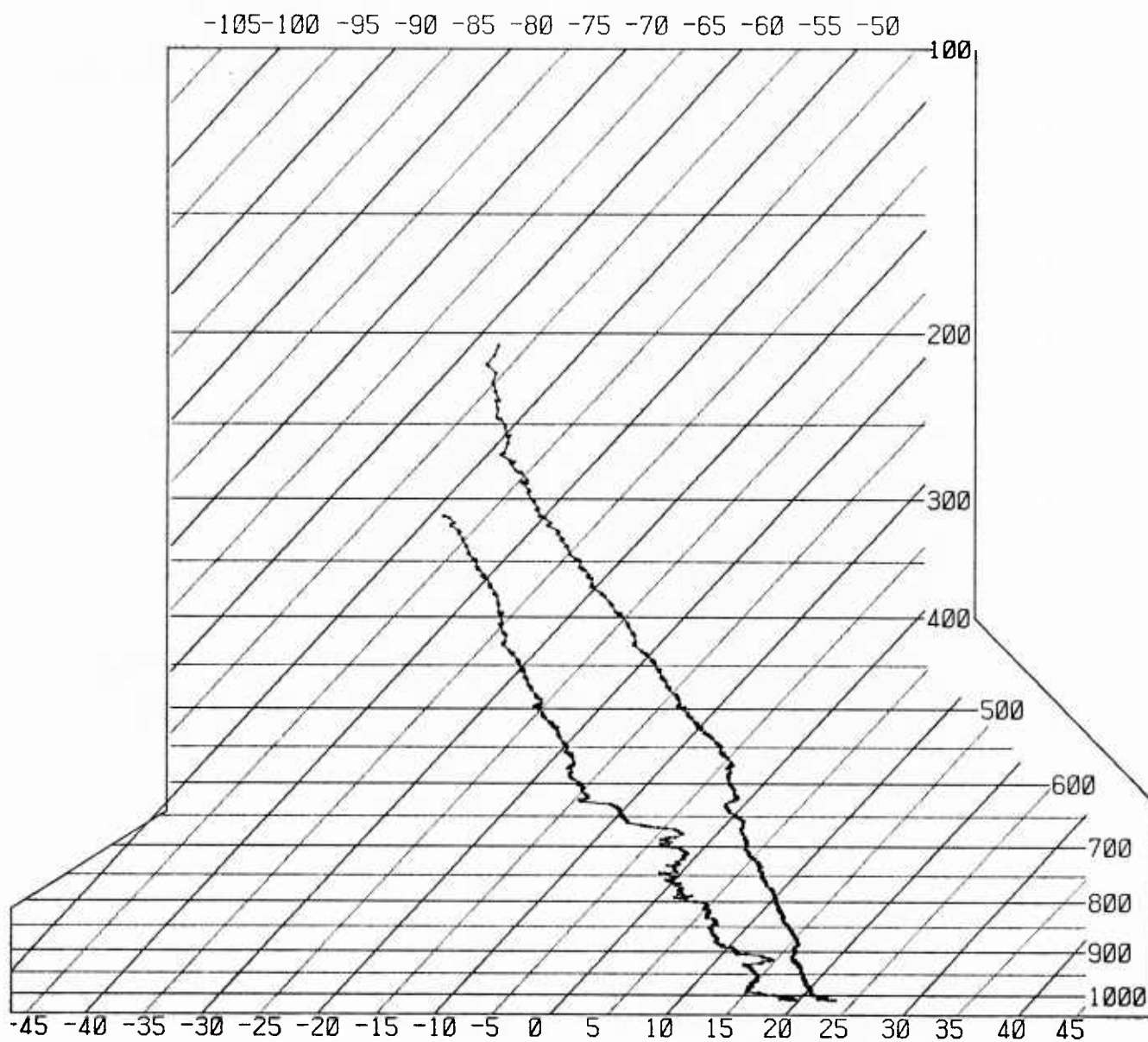
USS AMERICA CRUISE



36.0N, 017.4E 22 JUN 86 1157Z

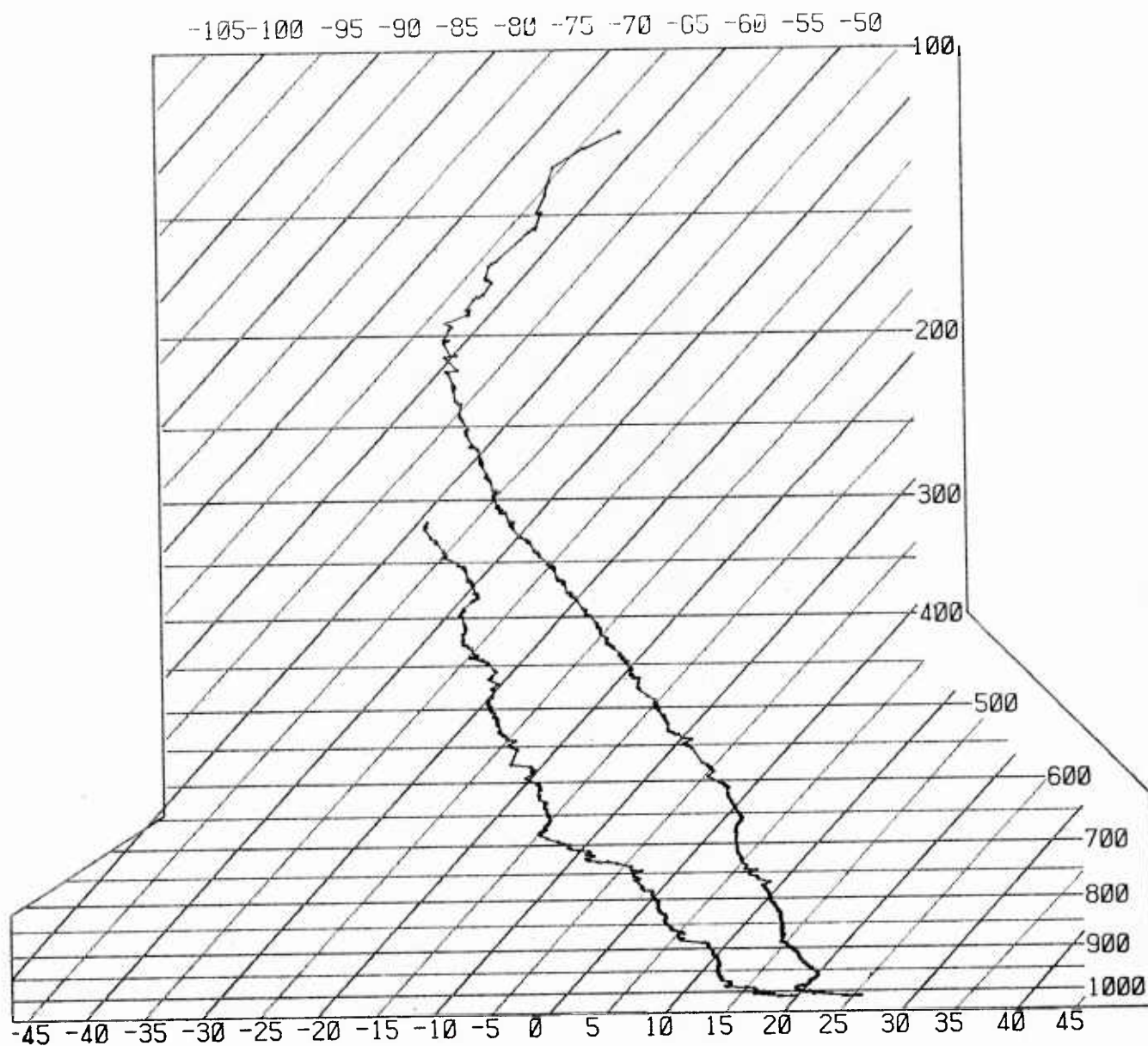
USS AMERICA CRUISE





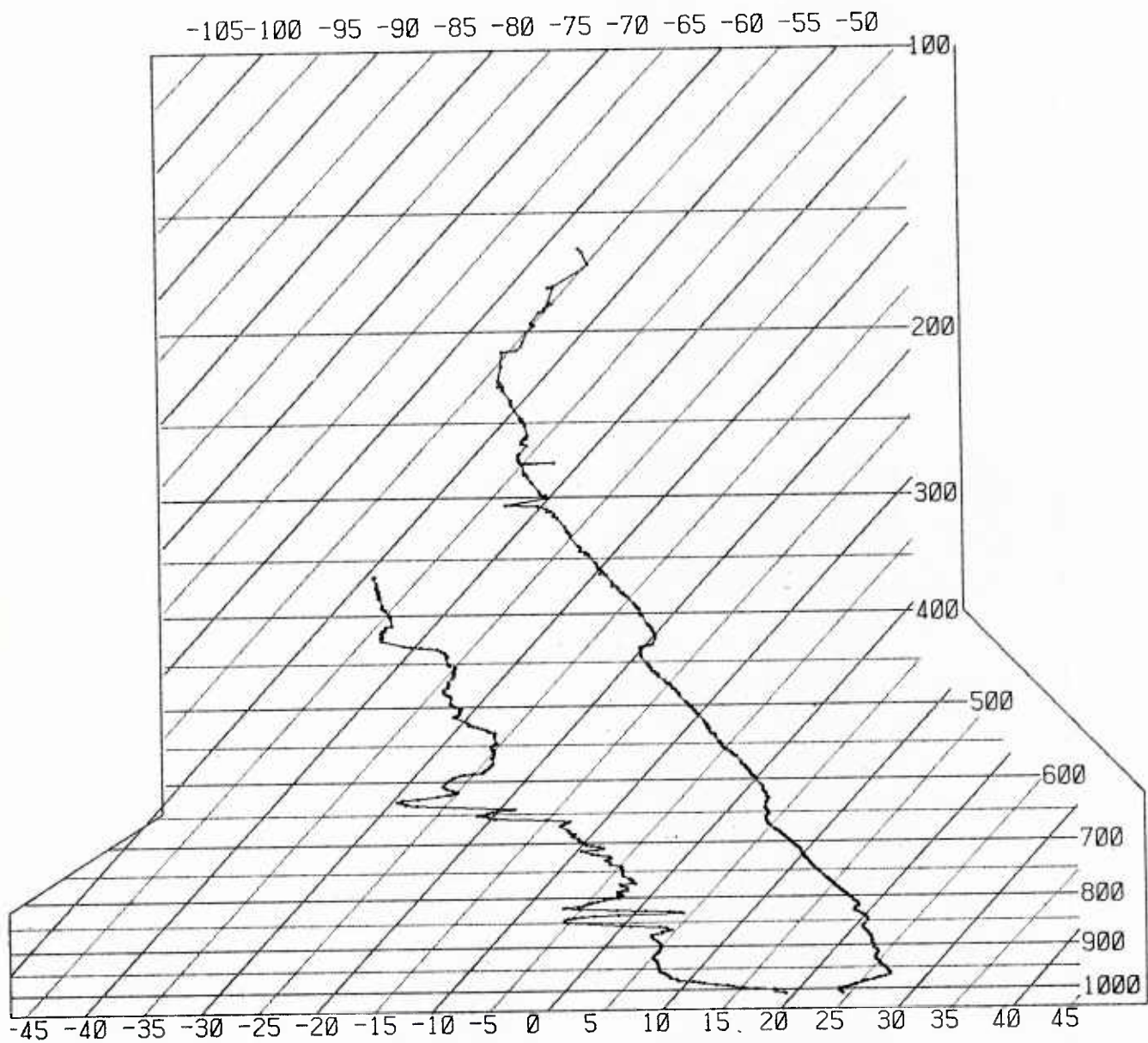
36.1N, 017.4E 23 JUN 86 0612Z

USS AMERICA CRUISE



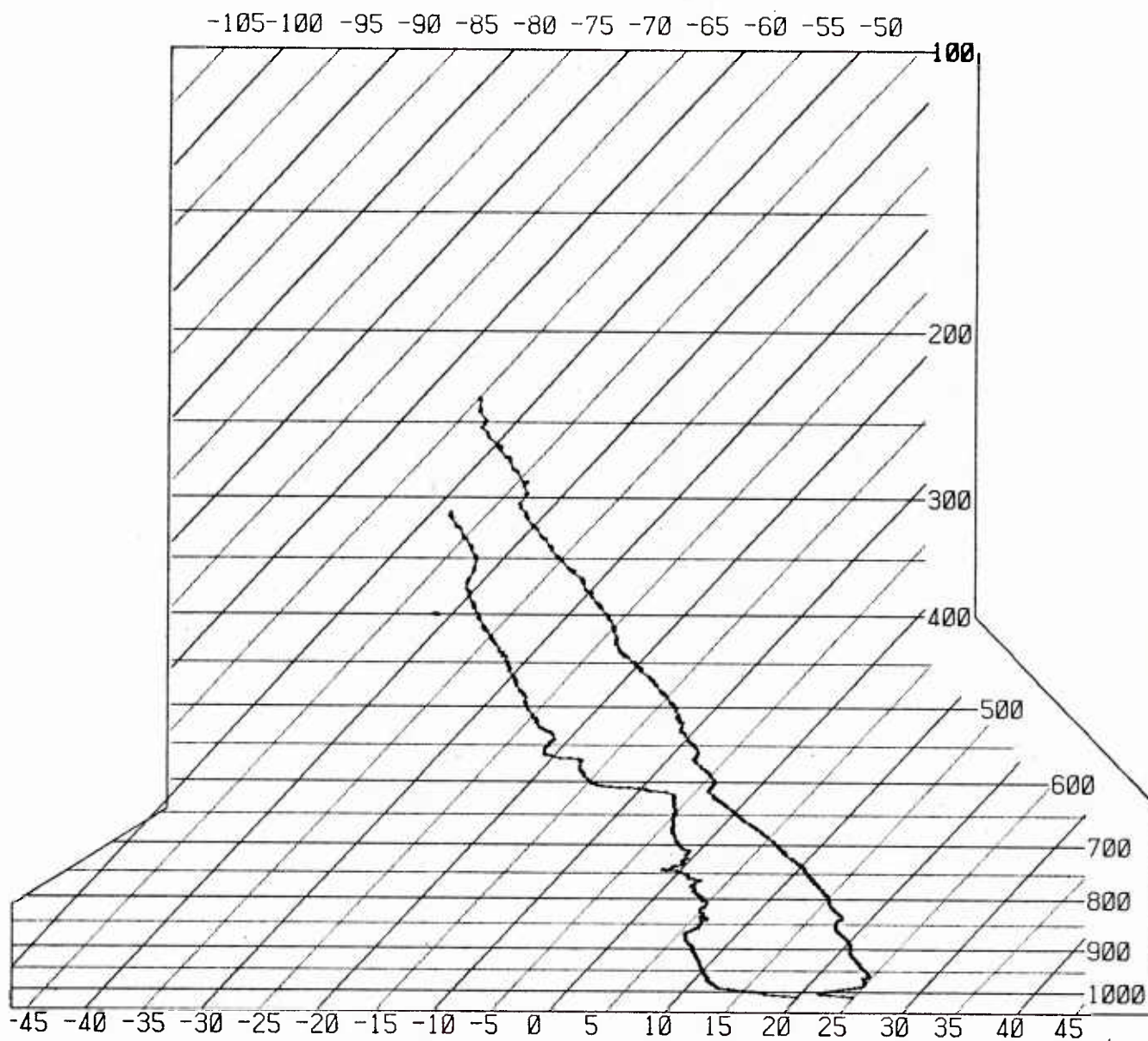
36.3N, 017.2E 23 JUN 86 1313Z

USS AMERICA CRUISE



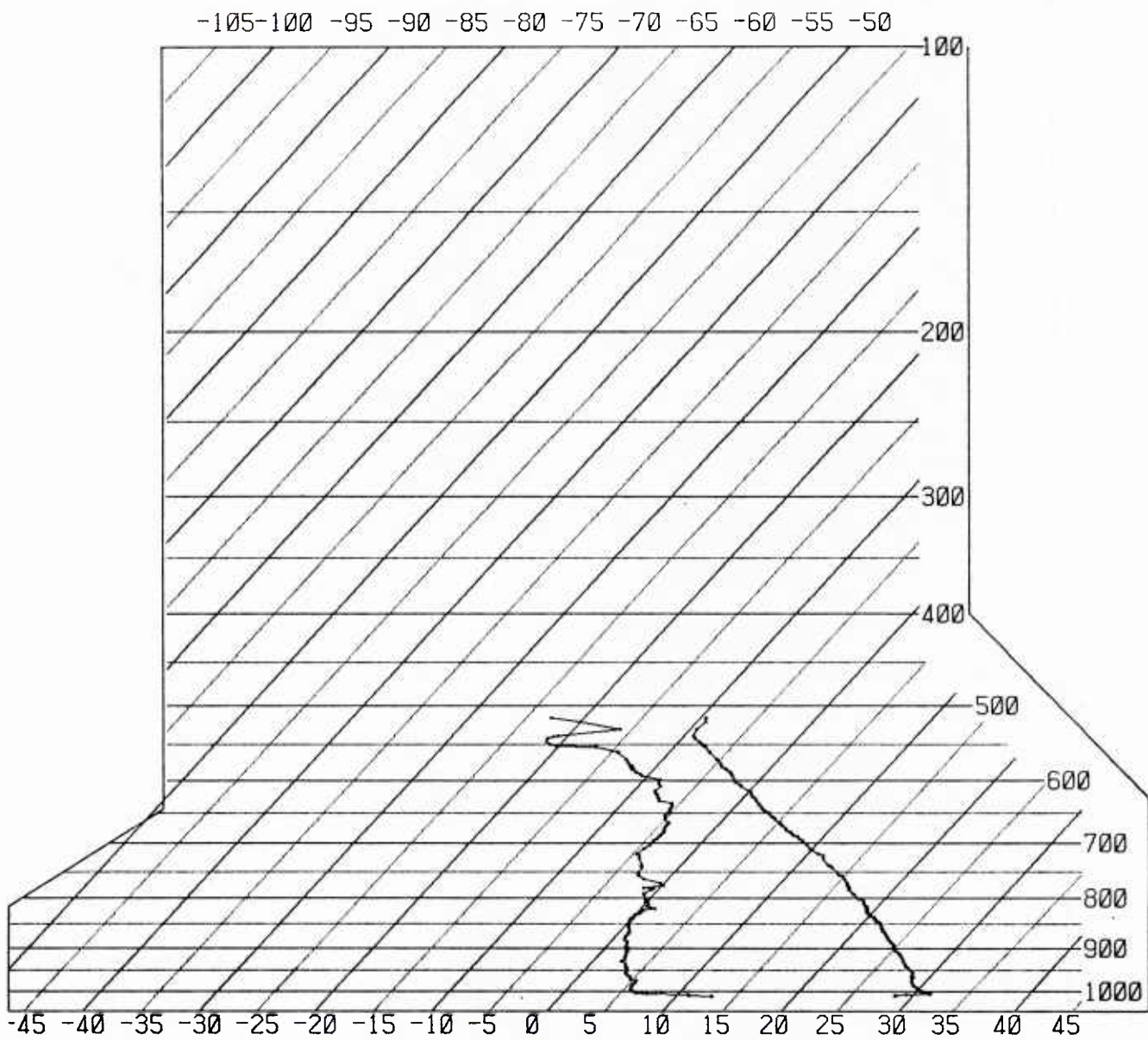
36.5N, 017.8E 24 JUN 86 0307Z

USS AMERICA CRUISE



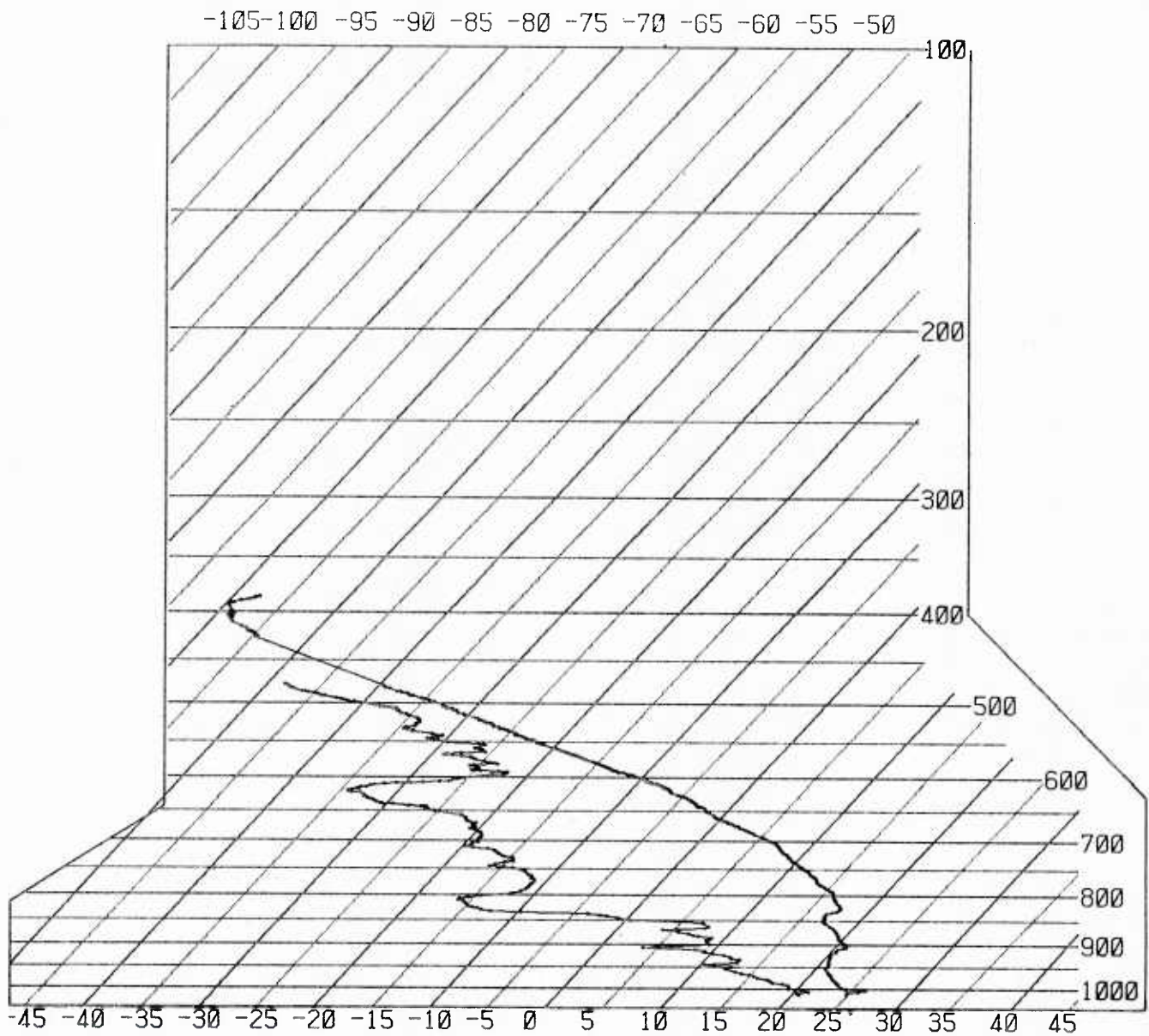
37.0N, 016.4E 24 JUN 86 0633Z

USS AMERICA CRUISE



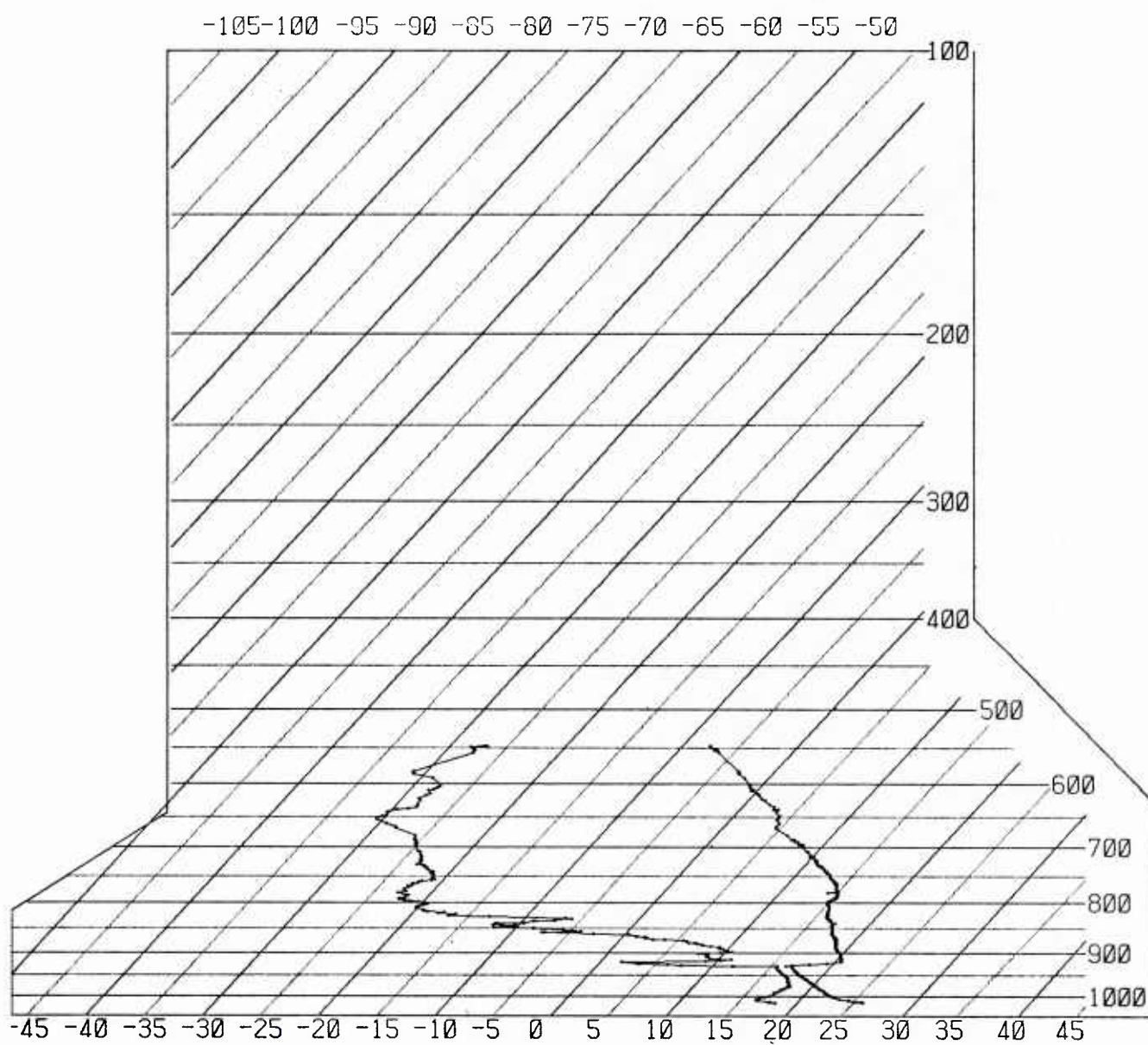
37.5N, 015.4E 24 JUN 86 1358Z

USS AMERICA CRUISE



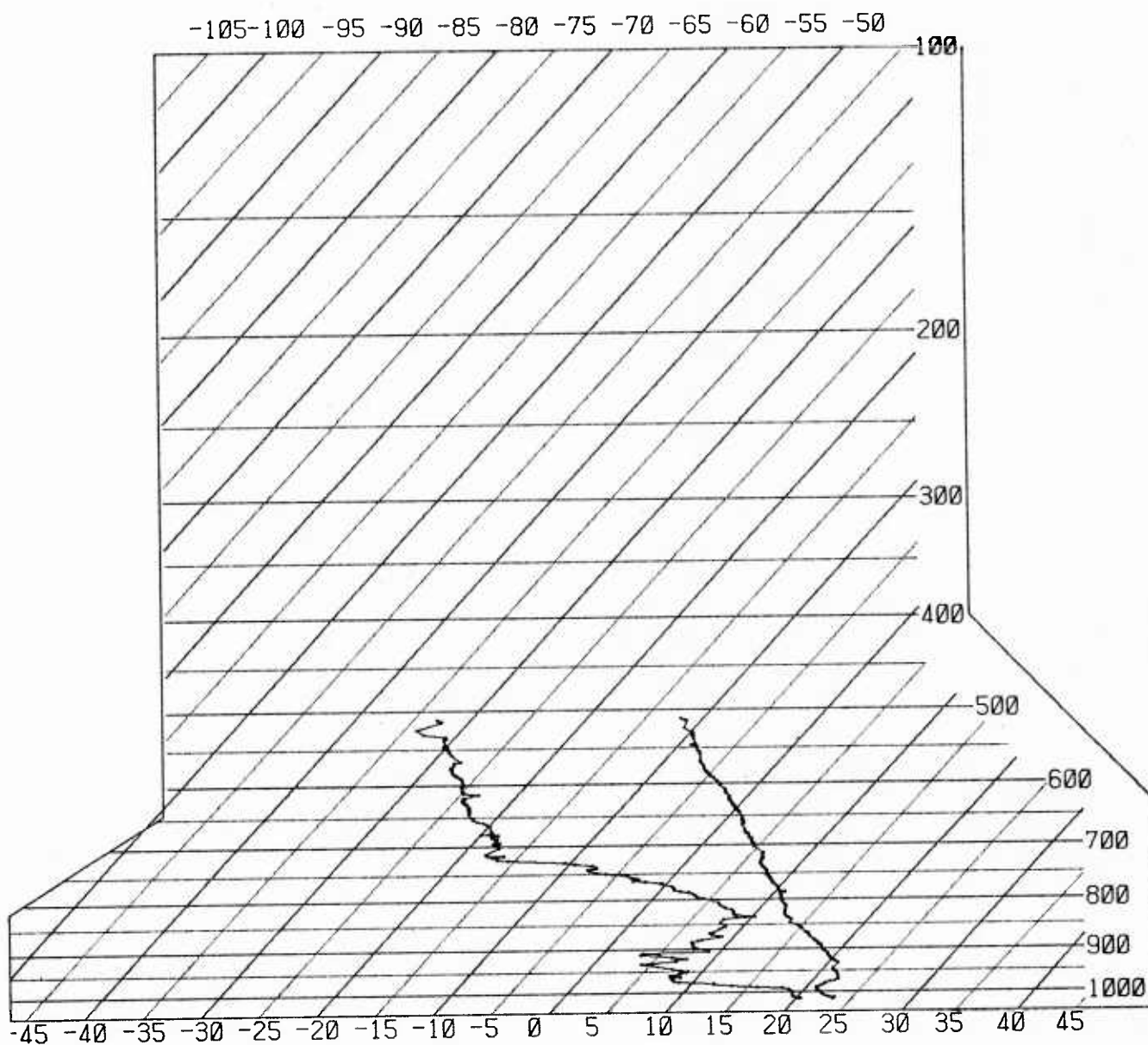
39.2N, 013.6E 25 JUN 86 0015Z

USS AMERICA CRUISE



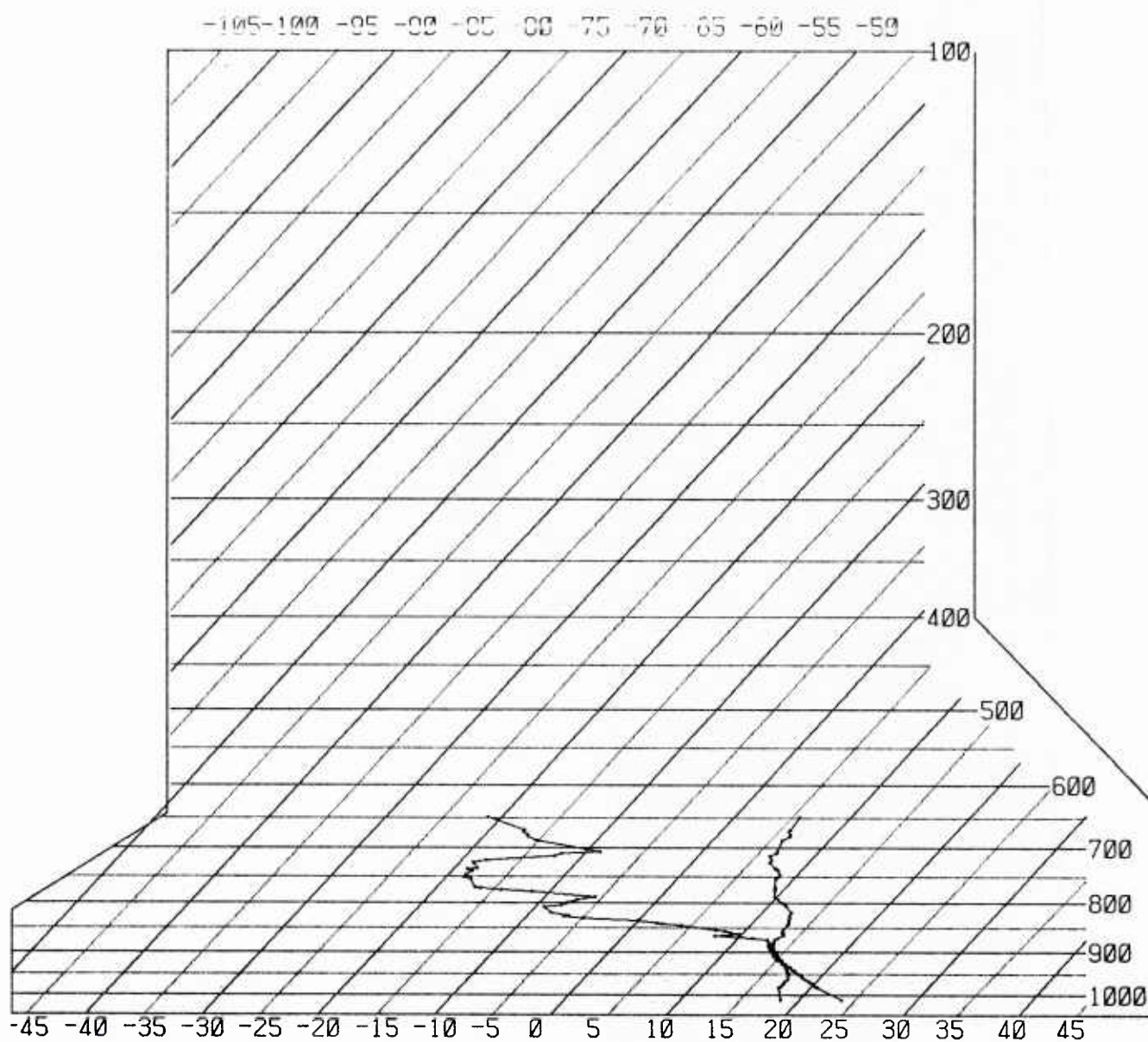
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USS AMERICA CRUISE



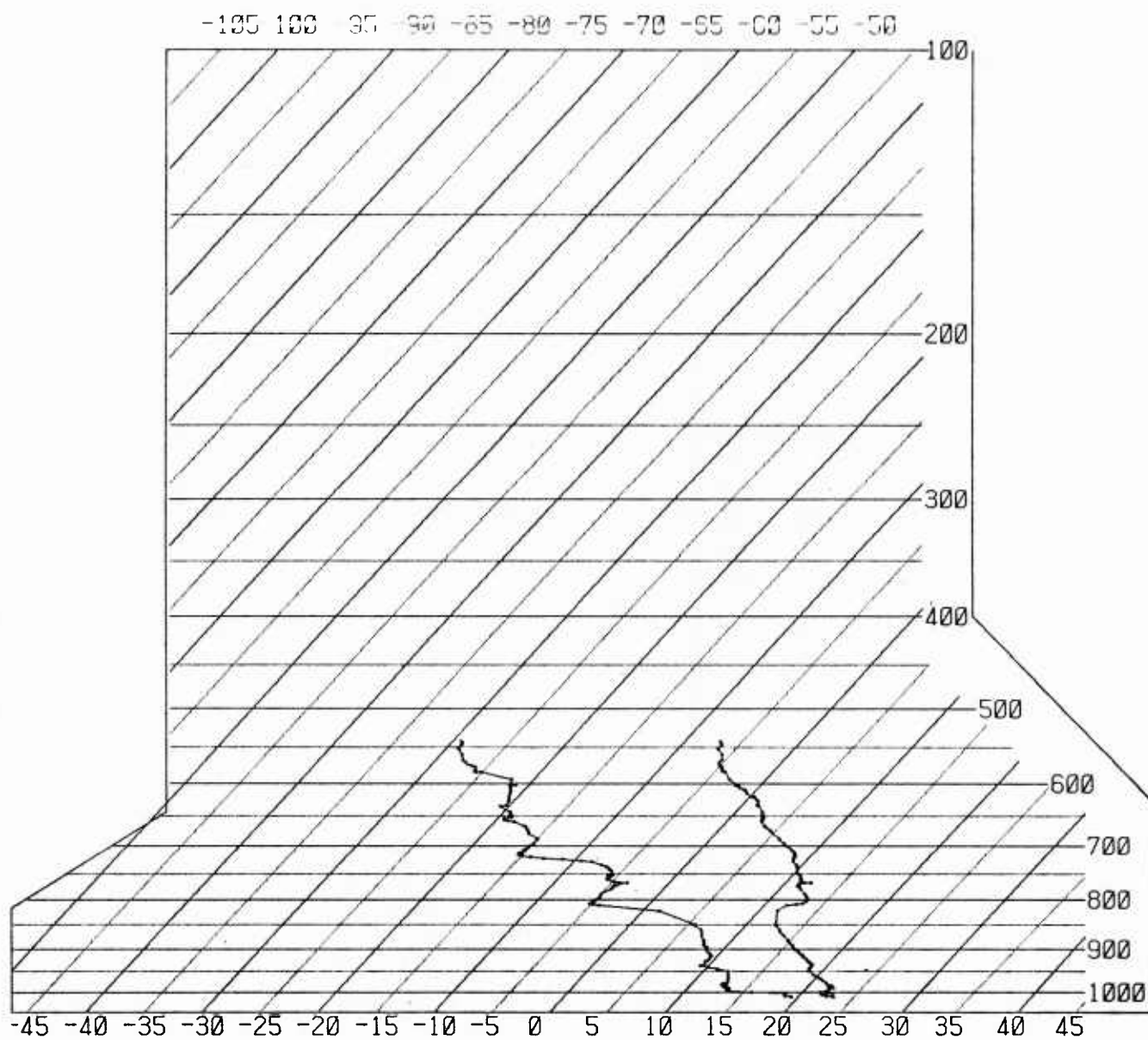
39.4N, 013.4E 27 JUN 86 0031Z

USS AMERICA CRUISE



39.3N, 015.2E 09 JUL 86 0007Z

USS AMERICA CRUISE



38.0N, 017.0E 10 JUL 86 0139Z

USS AMERICA CRUISE

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86061710Z	36N 006W	5/10 ST	10/10 CI	1017.2	23.0	12.5	7.0	354
86061711Z	36N 006W	9/10 ST	10/10 CI	1017.2	22.5	14.8	8.0	345
86061712Z	36N 006W	1/10 ST	10/10 CI	1017.0	20.5	13.2	7.0	353
86061713Z	35N 006W	1/10 ST	10/10 CI	1016.8	21.0	15.2	5.0	012
86061714Z	35N 006W	9/10 CI	19.0	1016.5	22.2	15.7	2.5	289
86061715Z	35N 006W	9/10 CI	16.0	1016.8	20.0	19.3	1.0	303
86061716Z	35N 006W	9/10 CI	16.0	1015.5	21.8	15.9	4.0	303
86061717Z	35N 006W	8/10 CI	15.0	1014.8	21.0	16.4	3.5	309
86061718Z	35N 006W	3/10 CI	14.0	1014.9	20.8	16.2	3.0	296
86061719Z	35N 006W	3/10 CI	12.0	1014.5	20.9	14.4	3.0	055
86061720Z	35N 006W	3/10 CI	* 18.5	1015.0	20.5	14.6	2.0	275

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86061806Z	36N 006W	10/10 CI	9.5	1014.8	20.0	16.6	2.0	336
86061807Z	36N 006W	9/10 CI	5.3	1015.0	20.6	17.9	5.5	098
86061808Z	36N 006W	9/10 CI	4.3	1015.3	20.8	18.4	7.5	093
86061809Z	35N 006W	9/10 CI	6.2	1015.8	20.0	17.6	2.0	290
86061810Z	35N 006W	9/10 CI	10.8	1016.0	21.8	16.9	2.5	209
86061811Z	35N 006W	10/10 ST	11.6	1016.2	21.5	16.9	0.5	230
86061812Z	35N 006W	5/10 ST	10.8	1016.0	20.0	17.9	1.0	215
86061813Z	35N 006W	5/10 ST	9.0	1015.6	23.2	18.1	2.0	200
86061814Z	35N 006W	6/10 ST	9.5	1015.3	21.8	18.8	2.5	330
86061815Z	35N 006W	10/10 ST	* 11.1	1014.4	22.5	18.2	2.0	260
86061816Z	35N 005W	10/10 CI	8.0 H	1014.4	21.0	17.7	6.0	103
86061817Z	35N 005W	10/10 ST	* 11.1	1013.7	20.3	18.3	5.0	123
86061818Z	36N 005W	9/10 ST	10.8	1013.9	21.0	17.7	6.5	130
86061819Z	36N 006W	9/10 ST	13.0	1014.2	21.0	18.0	8.0	138

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86061905Z	50N 003W	2/10 CU	3.7 H	1014.1	20.0	18.0	0.5	118
86061906Z	45N 003W		2.0 H	1014.4	19.8	18.1	1.0	225
86061907Z	35N 005W		6.2 H	1013.9	20.9	17.6	1.0	002
86061908Z	35N 006W		5.7 H	1013.8	21.2	18.7	2.0	092
86061909Z	35N 006W	2/10 CI	10.8 H	1013.7	21.2	19.1	3.5	124
86061910Z	36N 005W	2/10 CI	16.5	1014.4	21.8	17.6	4.0	138
86061911Z	36N 005W	2/10 CI	20.8	1015.6	21.8	17.3	8.5	135
86061912Z	36N 005W	3/10 CI	16.5	1017.0	21.8	17.6	7.5	119
86061913Z	36N 005W	3/10 CI	14.9	1017.7	22.3	17.6	7.0	124
86061914Z	36N 005W	3/10 CI	26.4	1019.7	22.6	16.8	7.0	123
86061915Z	36N 005W	2/10 CI	20.8	1020.4	24.2	15.9	1.0	222
86061916Z	35N 005W	1/10 CI	8.5	1020.3	21.8	18.8	2.5	288
86061917Z	35N 005W	1/10 CI	6.0	1019.6	22.4	18.5	3.0	287
86061918Z	35N 005W	9/10 SC	4.7	1018.6	22.4	18.8	3.0	280
86061919Z	35N 005W	9/10 SC	* 11.1	1017.3	21.5	18.5	2.5	285

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

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DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062005Z	36N 005W	10/10 ST	* 9.3	1014.0	20.0	15.3	4.0	267
86062006Z	36N 005W	10/10 ST	6.0	1012.8	20.5	17.1	2.5	264
86062007Z	36N 005W	9/10 ST, SC	5.2	1013.0	21.0	18.0	3.5	275
86062008Z	36N 005W	9/10 SC	4.9	1013.3	21.1	17.6	3.5	280
86062009Z	36N 005W	10/10 SC	24.0	1013.8	20.5	16.7	6.5	262
86062010Z	36N 005W	7/10 SC	24.0	1014.2	21.0	16.4	5.0	298
86062011Z	36N 005W	9/10 SC	34.4	1015.3	20.8	15.7	5.0	302
86062012Z	36N 005W	5/10 SC	50.0	1016.6	21.2	14.6	5.0	310
86062013Z	36N 005W	8/10 SC	44.0	1017.7	21.1	13.8	5.0	005
86062014Z	36N 005W	8/10 SC	44.0	1018.2	20.5	14.6	3.0	304
86062015Z	36N 005W	7/10 SC, CU	44.0	1018.6	20.5	14.6	6.5	299
86062016Z	36N 005W	2/10 SC, CU	61.0	1018.6	20.6	13.9	3.5	290
86062017Z	36N 005W	1/10 CU	23.0	1017.8	20.5	14.1	4.5	301
86062018Z	36N 005W	1/10 CU	56.0	1016.6	20.0	16.9	5.0	230

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062106Z	36N 005W	6/10 CU	56.0	1009.6	18.2	14.0	5.0	018
86062107Z	36N 005W	8/10 CU	56.0	1009.7	18.2	14.0	5.0	325
86062108Z	36N 005W	7/10 CU	72.0	1009.9	18.2	13.1	5.0	325
86062109Z	36N 005W	5/10 CU	72.0	1010.6	18.2	12.6	5.5	310
86062110Z	36N 005W	3/10 CU	56.0	1011.6	18.2	13.5	6.5	035
86062111Z	36N 005W	2/10 CU	56.0	1013.1	18.8	13.1	6.5	304
86062112Z	36N 005W	1/10 CU	61.0	1014.6	19.0	12.8	7.5	274
86062113Z	36N 005W	1/10 CU	66.0	1015.9	18.2	13.5	4.0	280
86062114Z	36N 005W	1/10 CU	113.0	1016.9	19.0	13.5	5.0	269
86062115Z	36N 005W	2/10 CU	88.0	1019.1	20.0	11.3	5.0	283
86062116Z	36N 005W	2/10 CU	76.0	1018.0	14.4	11.3	5.0	276
86062117Z	36N 005W	2/10 CU	63.0	1017.5	M	M	5.5	284
86062118Z	36N 005W	1/10 CU	69.0	1017.2	M	M	5.0	264
86062119Z	36N 005W	CLR	76.0	1016.0	M	M	5.0	247

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062205Z	36N 005W	3/10 CU	40.0	1014.6	17.0	12.5	6.5	278
86062206Z	36N 005W	3/10 CU	69.0	1014.3	18.2	10.1	3.5	301
86062207Z	36N 005W	2/10 CU	76.0	1012.7	18.8	10.6	3.0	310
86062208Z	36N 005W	1/10 CU	76.0	1012.4	18.2	11.5	4.0	304
86062209Z	36N 005W	1/10 CU	76.0	1012.9	18.5	12.4	5.0	277
86062210Z	36N 005W	1/10 CU	51.0	1013.8	18.5	12.4	3.5	243
86062211Z	36N 005W	1/10 CU	51.0	1015.4	18.5	12.4	4.5	275
86062212Z	36N 005W	1/10 CU	51.0	1017.2	19.4	12.5	5.5	250
86062213Z	36N 005W	CLR	51.0	1018.6	19.4	13.6	6.0	249
86062214Z	36N 005W	CLR	42.0	1019.3	19.4	13.2	7.0	257
86062215Z	36N 005W	CLR	42.0	1019.5	19.4	13.2	6.5	278
86062216Z	36N 005W	CLR	51.0	1019.3	19.4	13.2	7.0	271
86062217Z	36N 005W	CLR	51.0	1018.8	20.0	13.9	6.5	280
86062218Z	36N 005W	CLR	45.0	1017.9	19.0	13.8	6.5	298
86062219Z	36N 005W	CLR	* 18.5	1017.3	M	M	4.5	279

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062305Z	36N 005W	1/10 CU	35.0	1015.3	M	M	6.0	268
86062306Z	36N 005W	1/10 CU	35.0	1015.2	17.6	14.7	4.5	290
86062307Z	36N 005W	1/10 CU	30.4	1013.9	17.6	14.9	6.0	311
86062308Z	36N 005W	2/10 CU	42.0	1012.9	18.2	13.8	5.0	314
86062309Z	36N 005W	1/10 CU	28.0	1014.2	19.4	13.8	5.5	272
86062310Z	36N 005W	1/10 CU	18.6	1014.6	19.0	16.0	7.5	242
86062311Z	36N 005W	CLR	26.3	1015.6	19.4	15.8	11.0	235
86062312Z	36N 005W	1/10 CU	23.8	1017.0	18.8	14.1	11.0	251
86062313Z	36N 005W	1/10 CU	33.0	1017.8	20.0	16.6	9.0	238
86062314Z	36N 005W	1/10 CU	32.0	1018.7	20.0	16.6	10.0	239
86062315Z	36N 005W	1/10 CU	23.0	1018.9	19.5	17.3	8.0	228
86062316Z	36N 005W	CLR	19.5	1018.8	19.2	17.0	6.5	222
86062317Z	36N 005W	CLR	38.0	1017.5	19.2	17.0	11.0	252
86062318Z	36N 005W	CLR	32.0	1017.0	19.4	17.1	5.0	012
86062319Z	36N 005W	CLR	* 18.5	1019.3	20.8	17.8	4.5	216

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD	COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062405Z	36N 005W	3/10	CI	* 18.5	1020.8	17.6	15.5	2.5	290
86062406Z	36N 005W	4/10	CI	* 16.7	1020.8	18.2	15.7	3.5	235
86062407Z	36N 005W	4/10	CI	28.0	1017.1	18.9	15.8	4.0	243
86062408Z	36N 005W	2/10	CI	23.0	1015.2	19.2	16.1	3.0	252
86062409Z	36N 005W	6/10	CI	22.0	1015.3	19.2	16.9	4.0	255
86062410Z	36N 005W	6/10	CI	38.0	1016.2	20.1	16.4	3.0	320
86062411Z	36N 005W	5/10	CI	32.0	1017.7	20.3	16.9	4.5	310
86062412Z	36N 006W	2/10	CI	33.0	1019.1	20.8	17.0	5.0	312
86062413Z	36N 006W	2/10	CI	32.0	1019.4	21.9	16.5	5.5	320
86062414Z	36N 006W	2/10	CI	* 18.5	1019.6	M	M	4.0	300
86062415Z	36N 006W	2/10	CI	* 18.5	1019.7	M	M	4.5	286
86062416Z	36N 006W	CLR		35.0	1019.6	21.6	16.5	5.0	294
86062417Z	36N 005W	CLR		36.2	1019.7	20.6	16.8	4.5	290
86062418Z	36N 005W	CLR		35.0	1019.2	20.0	16.6	5.0	272
86062419Z	36N 005W	CLR		* 18.5	1020.3	20.7	16.9	5.0	253

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE
 * denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062505Z	36N 005W	9/10 CU	11.1	1018.6	22.3	16.0	3.0	240
86062506Z	36N 005W	9/10 CU SC	18.6	1018.2	18.9	17.2	3.0	260
86062507Z	36N 005W	3/10 CU	16.2	1015.9	18.9	17.2	2.5	229
86062508Z	36N 005W	2/10 CU ST	20.6	1015.4	19.6	17.8	3.0	288
86062509Z	36N 005W	1/10 CU	33.1	1015.4	20.1	18.1	3.5	298
86062510Z	36N 005W	1/10 CU	38.1	1016.1	20.1	18.3	3.5	308
86062511Z	36N 004W	1/10 CU	47.6	1017.3	20.0	18.3	3.0	304
86062512Z	36N 004W	1/10 CU	54.4	1019.3	20.6	17.2	3.0	304
86062513Z	36N 004W	1/10 CU	38.1	1021.3	21.0	17.7	3.0	286
86062514Z	36N 004W	CLR	50.8	1022.5	21.2	17.6	3.0	285
86062515Z	36N 004W	CLR	42.3	1023.5	20.0	18.3	3.5	284
86062516Z	36N 004W	CLR	33.1	1023.2	20.8	16.6	3.0	263
86062517Z	36N 004W	CLR	44.8	1025.7	20.6	17.9	2.5	291
86062518Z	36N 004W	CLR	34.6	1025.7	25.7	17.5	2.0	282

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE
 * denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062605Z	36N 005W	9/10 SC	* 16.7	1017.6	18.8	16.5	2.0	312
86062606Z	36N 005W	9/10 SC	33.1	1017.6	19.2	17.5	2.5	334
86062607Z	36N 005W	NO OBSERVATION	TAKEN					
86062608Z	36N 005W	3/10 SC	54.4	1015.8	20.6	16.8	3.0	310
86062609Z	36N 006W	2/10 SC	54.4	1015.4	21.6	18.8	3.0	300
86062610Z	36N 006W	1/10 SC	50.8	1015.7	21.1	16.8	3.5	293
86062611Z	36N 005W	1/10 SC	50.8	1016.3	21.1	16.8	4.0	283
86062612Z	36N 006W	1/10 SC	44.8	1018.6	21.0	17.7	4.0	280
86062613Z	36N 006W	1/10 SC	44.8	1021.0	20.6	18.0	5.0	287
86062614Z	36N 005W	1/10 SC	76.1	1023.8	20.8	17.1	6.0	292
86062615Z	36N 005W	1/10 SC	84.6	1023.7	21.0	17.7	4.5	296
86062616Z	36N 005W	CLR	76.1	1023.3	20.8	17.9	5.0	290
86062617Z	36N 005W	CLR	50.8	1022.6	21.1	18.2	5.0	280

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062705Z	36N 006W	1/10 CU ST	* 18.5	1017.7	18.8	17.4	2.0	328
86062706Z	36N 006W	1/10 CU ST	26.3	1017.3	19.2	17.7	2.0	325
86062707Z	36N 006W	1/10 SC	38.1	1016.9	18.8	17.9	3.5	315
86062708Z	36N 006W	8/10 CU	38.1	1019.2	21.0	18.4	3.0	269
86062709Z	36N 006W	3/10 CU	40.1	1019.2	21.1	18.5	2.5	293
86062710Z	36N 006W	1/10 CU	38.1	1019.6	20.8	18.1	2.0	276
86062711Z	36N 006W	CLR	30.5	1020.2	21.4	18.1	3.5	264
86062712Z	36N 006W	CLR	28.2	1020.8	21.1	18.2	4.0	257
86062713Z	36N 006W	CLR	30.5	1021.5	21.1	19.0	3.5	260
86062714Z	36N 006W	CLR	33.1	1023.2	22.8	18.8	5.0	284
86062715Z	36N 006W	CLR	42.3	1024.6	24.6	18.0	5.5	285
86062716Z	36N 006W	CLR	38.1	1025.5	22.3	18.7	5.5	282
86062717Z	36N 006W	CLR	42.3	1028.5	22.1	18.0	5.0	292
86062718Z	36N 006W	CLR	42.3	1017.5	M	M	4.5	308

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE
 * denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062805Z	36N 006W	CLR	* 14.8 H	1018.0	18.4	17.0	4.5	215
86062806Z	36N 006W	CLR	21.8 H	1018.3	18.6	16.9	3.5	225
86062807Z	36N 006W	3/10 ST	21.8 H	1018.7	19.2	17.3	4.5	212
86062808Z	36N 006W	5/10 SC	21.1 H	1018.8	20.3	17.4	3.5	212
86062809Z	36N 006W	2/10 SC	17.7 H	1019.0	20.4	18.6	4.0	252
86062810Z	36N 006W	1/10 CU	19.0 H	1019.0	21.3	18.9	7.5	247
86062811Z	36N 006W	CLR	26.3 H	1019.6	22.1	19.4	6.5	249
86062812Z	36N 006W	CLR	38.1 H	1019.6	21.8	18.0	5.0	308
86062813Z	36N 006W	CLR	36.3 H	1019.4	21.8	18.0	4.0	296
86062814Z	36N 006W	CLR	47.6 H	1019.4	21.4	18.2	5.0	274
86062815Z	36N 006W	CLR	50.8 H	1019.0	21.4	17.5	5.5	279
86062816Z	36N 006W	CLR	47.6 H	1018.6	21.1	17.8	5.0	272
86062817Z	36N 006W	CLR	76.1 H	1018.1	21.4	16.0	3.5	272
86062818Z	36N 006W	CLR	58.6 H	1017.8	21.4	16.0	4.0	299
86062819Z	36N 006W	CLR	* 16.7	1017.7	M	M	2.5	278

USNS LYNCH

MET RANGE = METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062905Z	36N 006W	3/10 SC	* 11.1 H	1017.3	17.9	15.7	4.5	211
86062906Z	36N 006W	2/10 SC	15.2 H	1018.2	18.6	17.2	6.5	211
86062907Z	36N 006W	2/10 SC	19.0 H	1018.8	19.4	17.6	5.0	245
86062908Z	36N 006W	2/10 SC	19.0 H	1019.6	20.6	17.1	5.0	195
86062909Z	36N 006W	4/10 CU	38.1 H	1020.2	21.2	15.4	5.0	272
86062910Z	36N 006W	1/10 CU	42.3	1020.5	20.4	14.9	4.0	294
86062911Z	36N 006W	CLR	42.3	1021.0	20.3	15.4	5.5	278
86062912Z	36N 006W	CLR	50.8	1021.3	20.3	14.6	5.0	290
86062913Z	36N 006W	CLR	58.6	1021.4	M	M	4.5	290
86062914Z	36N 006W	CLR	76.1	1021.0	M	M	M	M

USS AMERICA

MET RANGE =METEOROLOGICAL RANGE
 * denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD	COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86061907Z	39N 003E	200	SCT 2/10	CS	1014.7	21.6	15.6	6.5	100
86061908Z	39N 003E	200	SCT 2/10	CI	1015.0	22.2	18.9	6.0	090
86061909Z	39N 003E	200	SCT 3/10	CI	1015.2	22.9	18.9	6.5	090
86061910Z	39N 004E	200	SCT 3/10	CI	1016.1	22.8	19.4	5.0	110
86061911Z	39N 004E	200	SCT 1/10	CI	1015.9	21.7	18.9	7.0	100
86061912Z	39N 004E	200	SCT 1/10	CI	1016.1	23.3	18.3	4.5	120
86061913Z	39N 004E	200	SCT 1/10	CI	1015.9	26.1	18.9	3.5	150
86061914Z	39N 004E	260	SCT 3/10	CI	1015.3	24.5	18.9	7.0	120
86061915Z	39N 004E	260	SCT 1/10	CI	1014.8	22.4	18.3	6.5	130
86061916Z	39N 004E	CLR			1014.3	22.2	18.3	6.5	120
86061917Z	39N 005E	180	SCT 2/10	CI	1014.2	22.2	18.9	8.0	110
86061918Z	39N 005E	200	SCT 3/10	CI	1013.8	22.2	18.9	7.0	120
86061919Z	39N 005E	200	SCT 3/10	CI	1013.7	22.2	18.9	8.0	110

USS AMERICA

MET RANGE =METEOROLOGICAL RANGE

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DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062007Z	38N 008E	80 SCT 180 BKN 220 BKN	5.6 H	1014.5	21.9	18.9	7.5	080
86062008Z	38N 008E	6/10 CU, AC, CI 100 SCT 220 SCT 5/10 AC, CI	5.6 F/H	1014.6	20.6	19.5	8.5	070
86062009Z	38N 009E	-X 100 BKN 8/10 ST, AC, F	5.6 F/H	1015.2	20.8	19.5	8.0	110
86062010Z	38N 009E	-X 9/10 F	5.6 F	1015.7	20.8	19.5	8.0	100
86062011Z	38N 010E	-X220 BKN 7/10 CI, F	5.6 F/H	1015.4	21.2	19.5	7.5	100
86062012Z	38N 010E	220 SCT 4/10 CI	5.6 H	1015.7	23.3	19.5	8.5	100
86062013Z	38N 010E	220 SCT 2/10 CI	7.4 F/H	1015.2	20.8	18.9	8.0	110
86062014Z	38N 010E	220 SCT 3/10 CI	9.3 F/H	1014.5	21.8	18.3	6.5	090
86062015Z	38N 010E	220 SCT 5/10 CI	13.0 H	1014.5	21.1	13.3	6.5	070
86062016Z	38N 011E	220 SCT 4/10 CI	13.0	1013.8	21.1	13.3	7.5	110
86062017Z	38N 011E	220 SCT 4/10 CI	* 13.0	1014.0	21.3	18.9	5.5	070
86072018Z	38N 011E	220 SCT 3/10 CI	* 13.0	1014.2	21.1	18.3	5.5	150
86062019Z	38N 011E	220 SCT 2/10 CI	* 13.0	1014.0	21.1	18.3	1.5	140

USS AMERICA

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DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062107Z	36N 015E	80 BKN 200 BKN 7/10 AC, CI	* 8.3 F/H	1014.3	21.7	18.9	6.5	230
86062108Z	36N 015E	80 BKN 120 BKN 200 BKN 8/10 CU, AC, CI	* 11.1 F/H/RW-	1014.5	21.3	18.9	0.5	290
86062109Z	36N 015E	35 SCT 80 BKN 200 BKN 7/10 CU, AC, CI	11.1 H	1014.5	21.1	18.9	6.5	220
86062110Z	36N 015E	80 SCT 2/10 CU	13.0	1014.9	22.0	17.8	4.5	280
86062111Z	36N 016E	80 SCT 200 SCT 2/10 CU, CI	11.1 H	1014.7	23.3	17.8	4.0	180
86062112Z	36N 016E	120 SCT 1/10 AC	12.0 H	1014.5	21.8	18.3	2.5	270
86062113Z	36N 016E	120 SCT 1/10 AC	13.0 H	1014.0	22.4	17.8	3.0	210
86062114Z	36N 016E	CLR	13.0	1013.3	24.0	17.8	3.5	210
86062115Z	36N 016E	CLR	13.0	1013.0	23.1	17.8	4.0	280
86062116Z	36N 016E	CLR	13.0	1011.8	24.0	16.7	3.5	260
86062117Z	36N 017E	CLR	* 13.0	1011.9	22.8	16.7	2.0	270
86062118Z	36N 017E	200 SCT 1/10 CI	* 13.0	1012.0	22.8	17.8	5.0	230
86062119Z	36N 017E	200 SCT 1/10 CI	* 13.0	1012.4	22.8	17.8	3.5	260

USS AMERICA

MET RANGE =METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062207Z	36N 018E	35 SCT 200 SCT 3/10 CU, SC	12.0 H	1011.8	24.8	18.3	4.0	280
86062208Z	36N 018E	35 SCT 2/10 CU	11.1 H	1011.8	24.7	18.9	2.5	310
86062209Z	36N 018E	35 SCT 2/10 CU	11.1 H	1012.3	23.3	18.9	4.0	300
86062210Z	36N 018E	35 SCT 1/10 CU	11.1 H	1012.5	23.4	20.0	2.5	360
86062211Z	36N 018E	35 SCT 3/10 CU	11.1 H	1012.3	23.7	19.4	6.0	360
86062212Z	36N 018E	35 SCT 5/10 CU	10.2 H	1011.9	23.6	19.4	6.5	010
86062213Z	36N 018E	35 SCT 3/10 CU	11.1 H	1011.8	24.9	18.9	5.5	360
86062214Z	36N 018E	35 SCT 2/10 CU	11.1 H	1011.8	23.8	18.9	5.5	010
86062215Z	37N 018E	35 SCT 2/10 CU	11.1 H	1011.9	25.6	20.0	5.5	030
86062216Z	37N 018E	35 SCT 2/10 CU	13.0	1011.4	23.9	15.0	4.5	010
86062217Z	36N 018E	80 SCT 1/10 AC	* 13.0	1011.5	23.8	17.2	6.0	020
86062218Z	36N 018E	80 SCT 1/10 AC	* 13.0	1011.9	23.5	17.2	6.0	360
86062219Z	36N 018E	15 SCT 80 SCT	* 13.0	1012.5	23.3	17.2	5.5	350
	2/10 CU, AC							

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DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062307Z	36N 017E	CLR	12.0 H	1013.6	23.7	18.9	5.5	310
86062308Z	36N 017E	CLR	13.0 H	1013.6	23.8	18.9	4.0	310
86062309Z	36N 017E	CLR	9.3 H	1013.8	23.8	20.0	5.0	290
86062310Z	36N 017E	CLR	11.1 H	1014.0	24.3	20.6	5.0	350
86062311Z	36N 017E	CLR	11.1 H	1014.3	25.2	20.0	7.5	310
86062312Z	36N 017E	CLR	10.2 H	1013.5	25.3	20.6	6.0	320
86062313Z	36N 017E	CLR	11.1 H	1013.5	24.8	19.5	2.0	310
86062314Z	36N 018E	CLR	11.1 H	1013.3	26.1	20.6	3.5	290
86062315Z	36N 018E	CLR	11.1 H	1013.1	24.4	20.0	2.0	290
86062316Z	36N 018E	CLR	9.3 H	1012.5	24.8	20.6	4.5	280
86062317Z	36N 018E	CLR	* 11.1	1012.7	23.9	20.6	3.0	280
86062318Z	36N 018E	CLR	* 11.1	1012.8	23.6	21.1	7.0	260
86062319Z	36N 018E	CLR	* 11.1	1013.1	23.6	21.1	7.5	250

USS AMERICA

MET RANGE =METEOROLOGICAL RANGE

* denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062407Z	37N 017E	CLR	9.3 H	1013.1	24.3	20.0	10.5	270
86062408Z	37N 017E	CLR	11.1 H	1013.1	25.3	18.3	8.0	270
86062409Z	37N 016E	CLR	11.1 H	1014.0	25.0	19.5	8.0	260
86062410Z	37N 016E	CLR	11.1 H	1012.6	25.7	17.8	8.0	280
86062411Z	37N 016E	CLR	13.0	1012.9	26.8	18.9	0.0	000
86062412Z	38N 016E	CLR	13.0	1013.0	26.5	20.0	1.5	340
86062413Z	38N 016E	160 SCT 220 SCT	13.0	1012.8	26.8	22.2	3.5	350
	4/10 AC, CI							
86062414Z	38N 016E	160 SCT 220 SCT	13.0	1012.9	28.3	13.3	13.5	360
	3/10 AC, CI							
86062415Z	38N 016E	220 BKN 7/10 CI	13.0	1013.5	25.6	16.1	5.0	010
86062416Z	38N 016E	220 -BKN 8/10 CI	13.0	1013.5	25.5	17.8	5.0	350
86062417Z	39N 016E	200 -BKN 8/10 CI	* 13.0	1013.5	26.1	16.7	2.5	020
86062418Z	39N 015E	200 -BKN 8/10 CI	* 13.0	1014.0	25.6	18.9	3.0	350
86062419Z	39N 015E	200 -BKN 8/10 CI	* 13.0	1014.3	25.6	18.9	2.5	350

USS AMERICA

MET RANGE =METEOROLOGICAL RANGE
 * denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062507Z	39N 014E	8 BKN 10 BKN 8/10 ST	* 9.3 H	1015.9	23.0	17.8	2.5	330
86062508Z	39N 014E	10 BKN 6/10 ST	* 9.3 H	1016.0	23.6	17.8	2.0	330
86062509Z	39N 013E	10 BKN 7/10 SC	* 9.3 H	1016.2	23.7	20.0	4.5	340
86062510Z	39N 013E	10 BKN 6/10 SC	* 11.1 H	1016.4	23.7	20.0	2.5	290
86062511Z	39N 013E	10 BKN 6/10 CU	* 11.1 H	1016.0	24.2	20.6	3.0	350
86062512Z	40N 013E	10 SCT 1/10 CU	11.1 H	1016.3	23.2	20.0	3.0	020
86062513Z	40N 013E	CLR	13.0	1016.3	23.4	20.0	6.0	310
86062514Z	40N 013E	200 SCT 2/10 CI	13.0	1016.3	26.6	20.6	3.5	350
86062515Z	40N 013E	200 SCT 3/10 CI	11.1 H	1015.8	24.5	20.6	6.0	320
86062516Z	40N 013E	200 SCT 3/10 CI	11.1 H	1015.8	24.5	20.0	3.5	350
86062517Z	40N 013E	200 SCT 3/10 CI	* 11.1	1015.8	24.3	22.2	4.0	350
86062518Z	40N 013E	80 SCT 200 SCT 3/10 AC, CI	* 11.1	1015.9	24.3	22.2	6.5	350
86062519Z	40N 013E	80 SCT 200 SCT 4/10 AC, CI	* 9.3	1016.2	24.0	22.2	4.5	350

USS AMERICA

MET RANGE =METEOROLOGICAL RANGE
 * denotes observed visibility (converted from nautical miles)

DTG	POSITION	CLOUD COVER	MET RANGE (km)	PRESSURE (mb)	TEMP (C)	DEWPOINT (C)	WS (m/s)	WD
86062607Z	40N 013E	CLR	11.1	H	23.7	22.2	7.0	010
86062608Z	40N 013E	CLR	11.1	H	25.8	22.2	1.5	290
86062609Z	40N 013E	CLR	11.1	H	27.1	22.8	2.0	010
86062610Z	40N 013E	CLR	10.2	H	26.2	22.8	2.0	020
86062611Z	40N 013E	CLR	10.2	H	26.7	21.7	1.0	030
86062612Z	40N 013E	CLR	11.1	H	27.3	18.9	1.5	060
86062613Z	40N 014E	CLR	11.1	H	26.3	17.2	2.5	050
86062614Z	40N 014E	CLR	11.1	H	26.5	24.4	0.0	000
86062615Z	40N 014E	CLR	* 11.1	H	25.3	17.8	2.0	300
86062616Z	OBSERVATION MISSING							
86062617Z	40N 013E	CLR	* 13.0		25.0	17.8	0.0	000
86062618Z	40N 013E	CLR	* 13.0		25.0	17.8	3.5	310
86062619Z	40N 013E	CLR	* 13.0		24.4	19.4	0.0	000

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